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Behavioral Economics and the SEC

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ADAM C. PRITCHARD

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Behavioral Economics and the SEC

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Stephen J. Choi^{*} & A.C. Pritchard^{**}

Abstract. Investors face myriad investment alternatives and seemingly limitless information concerning those alternatives. Not surprisingly, many commentators contend that investors frequently fall short of the ideal investor posited by the rational actor model. Investors are plagued with a variety of behavioral biases (such as, among others, the hindsight bias, the availability bias, loss aversion, and overconfidence). Even securities market institutions and intermediaries may suffer from biases, led astray by groupthink and overconfidence.

The question remains whether regulators should focus on such biases in formulating policy. An omnipotent regulatory decisionmaker would certainly improve on flawed investor decisionmaking. The alternative we face, however, is a behaviorally-flawed regulator, the Securities and Exchange Commission (SEC). Several behavioral biases may plague SEC regulators including overconfidence, the confirmation bias, framing effects, and groupthink. While structural solutions are possible to reduce biases within the agency, we argue that such solutions are only partially effective in correcting these biases.

Instead of attempting to determine when the behavioral biases of regulators outweigh those within the market, we take a different tactic. Because behaviorally flawed (and possibly self-interested) regulators themselves will decide whether market-based biases outweigh regulatory biases, we propose a framework for assessing such regulatory intervention. Our framework varies along two dimensions. The more monopolistic the regulator (such as the SEC), the greater is the presumption against intervention to correct for biases in the market. Monopolistic regulatory agencies provide a fertile environment for behavioral biases to flourish. Second, the more regulations supplant market decisionmaking, the greater is the presumption against such regulations. Market supplanting regulations are particularly prone to entrenchment, making reversal difficult once such regulations have become part of the status quo.

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I. Introduction

Not all investors are rational. Quite apart from the obvious examples of credulity in the face of the latest Ponzi scheme, there is no shortage of evidence that many investors' decisions are influenced by systematic biases that impair their abilities to maximize their investment returns.¹ For example, investors will often hold onto poorly performing stocks longer than warranted, hoping to recoup their losses.² Other investors will engage in speculative trading, dissipating their returns by paying larger commissions than more passive investors.³ And we are not just talking about widows and orphans here. There is evidence that supposedly sophisticated institutional investors – mutual funds, pension funds, insurance companies – suffer from similar biases that impair their decisions.⁴ These biases are not isolated quirks but consistent deep-rooted and systematic behavioral patterns. Apparently even the considerable sums at stake in the securities markets are not enough to induce market participants to overcome these cognitive defects on a consistent basis.

Not surprisingly, these findings of scholars working at the intersection of psychology and economics have recently found their way into legal scholarship. This burgeoning trend has come to be called “behavioral law and economics.”⁵ Behavioral law and economics is defined primarily by what it rejects: the rational actor model that is the fundamental premise of conventional law and economics. The rational actor model postulates that individuals shrewdly

¹ For a useful survey, see David A. Hirshleifer, *Investor Psychology and Asset Pricing*, 61 J. Fin. 1533 (2001).

² See Terrence Odean, *Are Investors Reluctant to Realize their Losses?*, 53 J. Fin. 1775 (1998); Hersh Shefrin and Meir Statman, *The Disposition To Sell Winners Too Early and Ride Losers Too Long: Theory And Evidence*, 40 J. Fin. 777 (1985).

³ See Brad Barber and Terrence Odean, *Trading is hazardous to your wealth: The common stock investment performance of individual investors*, 55 J. Fin. 773 (2000); Terrence Odean, *Do investors trade too much?*, 89 Am. Econ. Rev. 1279 (1999).

⁴ See text at *infra* notes 73-93 (discussing the behavioral biases afflicting securities market institutions).

⁵ See, e.g., *Behavioral Law & Economics* (Cass R. Sunstein, ed., 2000).

calculate the course of action that will maximize their wealth and utility.⁶ This presumption is bolstered in market settings, where economically minded commentators commonly assume that the most rational will dominate in competition with those less-cognitively able.

In the context of the securities markets the rational actor model has considerably less Darwinian implications than one might suppose. Under the Efficient Capital Market Hypothesis,⁷ the “smart” money will set prices and through the process of arbitrage will swamp the influence of the poorly informed or foolish. Even the unsophisticated therefore can rely on market efficiency to ensure that the price he pays for a security will be “fair.” More importantly, the unsophisticated can accomplish their investment goals by passively tracking the overall market without evaluating individual companies and the securities that they issue.⁸ Far from weeding out unsophisticated investors, the overwhelming influence of smart money actually indirectly protects the interests of the poorly informed, as evidenced by the burgeoning popularity of index funds.⁹

The more provocative implication of the efficient market hypothesis is that government regulation of financial intermediaries and companies’ financial disclosures may be unnecessary and potentially wasteful. Investors will price legal protections – or the lack thereof – when valuing securities. If financial intermediaries do not give credible assurance that they will not abuse their customers’ trust, investors will not entrust them with their investment dollars. And if

⁶ See Gregory Mitchell, Why Law and Economics’ Perfect Rationality Should Not Be Traded for Behavioral Law and Economics’ Equal Incompetence, 91 Geo. L.J. – (1) (2002).

⁷ See Eugene F. Fama, Efficient Capital Markets: A Review of Theory and Empirical Work, 25 J. Fin. 383 (1970) (providing a survey of theoretical implications of efficient markets and empirical testing of the efficient markets hypothesis).

⁸ Some finance theorists argue markets are not efficient due to the presence of “noise traders” who trade not based on information but rather due to liquidity needs. See J. Bradford De Long et al., Noise Trader Risk in Financial Markets, 98 J. Pol. Econ. 703, 713, 717 (1990).

⁹ The authors share this faith; our retirement savings are indexed. Of course, the popularity of index funds may reflect regret aversion: investors are more likely to regret poor investments when they are actively involved in making those choices. See Daniel Kahneman and Amos Tversky, The Psychology of Preferences, 246 Scientific

companies do not give credible assurance that they will disclose truthfully the information that investors rely upon to value securities, those companies will pay substantial risk premia (thereby compensating investors for the risk of fraud) or be unable to sell their securities altogether. We confess to having penned a few lines of this sort ourselves in prior work.¹⁰

Adherents to behavioral law and economics are not so sanguine about investors' capacity to fend for themselves. They argue that arbitrage will not drive irrationality from the market, but instead may fuel it: "Arbitrage is a double-edged blade: Just as rational investors arbitrage away inefficient pricing, foolish traders arbitrage away efficient pricing."¹¹ If mispricing is a persistent phenomenon, the behavioralists fear that investors left to the mercies of unscrupulous brokers and corporate executives will be systematically fleeced. Rejecting the laissez faire normative outlook that underlies much law and economics scholarship, the behavioral economics school generally subscribes to an "anti-antipaternalism."¹² As any high school English teacher no doubt could translate, this means a belief in "paternalism."¹³ In the context of the securities regulation, this faith has a quite tangible object of worship: the Securities and Exchange

American 160 (1982).

¹⁰ See, e.g., Stephen J. Choi, Promoting Issuer Choice in Securities Regulation, 41 Va. J. Int'l L. 815 (2001); Stephen J. Choi & Andrew T. Guzman, Portable Reciprocity: Rethinking the International Reach of Securities Regulation, 71 S. Cal. L. Rev. 903 (1998); A.C. Pritchard, Markets as Monitors: A Proposal To Replace Class Actions with Exchanges as Securities Fraud Monitors, 85 Va. L. Rev. 925 (1999).

¹¹ Hirshleifer, *supra* note 1, at 1536. Moreover, arbitrage is costly, which may limit its effect on mispricing. See Andrei Shleifer & Robert W. Vishny, The Limits of Arbitrage, 52 J. Fin. 35 (1997).

¹² See Cass R. Sunstein, Behavioral Analysis of Law, 64 U. Chi. L. Rev. 1175, 1178 (1997).

¹³ It's hard to ignore the ideological tenor of this work. See, e.g., Donald C. Langevoort, Are Judges Motivated To Create "Good" Securities Fraud Doctrine?, 51 Emory L.J. 309, 318 (2002) ("Political conservatives are especially inclined to discount psychological excuses and project onto the world an unrealistic level of intentionality.") (citing Philip Tetlock, Cognitive Biases and Organizational Correctives: Do Both Disease and Cure Depend on the Politics of the Beholder?, 45 Admin. Sci. Q. 293 (2000)). See also Philip E. Tetlock & Barbara A. Mellers, The Great Rationality Debate, 13 Psychol. Sci. 94, 97 (2002) ("It should not be surprising that Kahneman and Tversky's research program is more enthusiastically embraced by economists on the left, who have long doubted that markets are infallibly self-correcting and suspected that people sometimes need to be protected from themselves, than by economists on the laissez-faire right, who worry about what kind of 'micro' case is not being manufactured for new meddlesome forms of government intervention."); Stephen M. Bainbridge, Mandatory Disclosure: A Behavioral Analysis, 68 U. Cinn. L. Rev. 1023, 1027 (2000) ("it seems probable that behavior economics increasingly will be invoked by those who favor government intervention precisely because behavioral economics offers a new line of argument in favor of regulation private conduct.").

Commission (SEC).

Several commentators use the evidence of cognitive defects among investors to justify preserving and expanding the role of the SEC.¹⁴ In the absence of government regulation, greedy promoters will step into the void to prey on the cognitive defects of investors. Particular scorn is directed toward proposals to substitute market regulation for SEC oversight.¹⁵ Market participants, the argument goes, will not precommit to regulatory protections to win the trust of investors, but instead will manipulate investors' biases systematically to enrich themselves.¹⁶ Competition cannot be relied upon to promote investor welfare because of the systematic nature of the biases. The small investor cannot count on the smart money to demand fair treatment for all investors – the smart money suffers from the same set of biases. Only government intervention can protect investors from their own cognitive defects.

While we think the magnitude of investor biases is open to question,¹⁷ we focus on a different question here: If cognitive defects are pervasive, will intervention help? Even well intentioned and fully rational regulators may find it difficult to solve the problem of cognitive illusions among investors. Disclosure, the prevailing regulatory strategy in the securities markets, may not protect investors if cognitive biases prevent them from rationally incorporating the information disclosed into their investment decisions. More fundamentally, if everyone suffers from cognitive defects, doesn't that also include the commissioners and staff of the SEC?

¹⁴ See Robert Prentice, *Whither Securities Regulation? Some Behavioral Observations Regarding Proposals For Its Future*, 51 Duke L. J. 1397 (2001); Lawrence A. Cunningham, *Behavioral Finance and Investor Governance* (working paper 2001) (located at http://papers.ssrn.com/sol3/papers.cfm?abstract_id=255778) (proposing to reform various aspects of securities regulation to take into account insights from behavioral finance).

¹⁵ See Prentice, *supra* note 14 (casting scorn on both Choi and Pritchard's prior market-based proposals); see also Langevoort, *Taming the Animal Spirits of the Stock Markets: A Behavioral Approach to Securities Regulation*, 97 Nw. U. L. Rev. 135, 153 (2003) ("Behavioral finance can be invoked as a counterweight, to demonstrate the costs and risks of [deregulatory] proposals under an arguably more realistic view of how markets behave.").

¹⁶ Donald C. Langevoort, *Selling Hope, Selling Risk: Some Lessons for Law from Behavioral Economics About Stockbrokers and Sophisticated Customers*, 84 Cal. L. Rev. 627 (1996).

Regulators may respond that their expertise shields them from some cognitive illusions. The work of behavioral economists, however, shows that experts may fall prey to their own set of biases.¹⁸ Moreover, regulators do not face the same competitive pressures that investors and other securities market participants do.¹⁹ Those competitive forces may help mitigate behavioral biases among investors and securities professionals (at the very least forcing out of the market those with the greatest levels of cognitive difficulties). Regulators, by contrast, generally enjoy monopolies in their field, which immunizes them from the stringent constraints of the market that might force corrections in decisionmaking flaws. If biases are universal, do regulators suffer more or less from those biases than investors? Markets deal harshly with fools; our cynical side worries that government affords a safe haven.

Not all commentators applying behavioral insights to securities regulations call unquestioningly for government intervention to correct for market-based biases. The possibility of regulator biases has led some to question the wisdom of regulation as a solution for market-based biases.²⁰ For those attempting to take into account regulator behavioral biases, the question nonetheless remains: How should policymakers weigh investors' behavioral biases

¹⁷ We address some of these magnitude questions *infra* Part II.C.

¹⁸ We discuss the biases facing "expert" SEC regulators *infra* Part III.

¹⁹ See Kent Daniel, David Hirshleifer, and Siew Hong Teoh, *Investor Psychology in Capital Markets: Evidence and Policy Implications*, at 3 (Working Paper, August 3, 2001) ("Individual political participants are immune to the biases and self-interest exhibited in private settings. . . . Indeed, the economic incentives of officials to overcome their biases in evaluating fundamental value are likely to be weaker than the incentives of market participants. So government efforts to correct market perceptions are likely to waste resources and increase *ex ante* uncertainty.").

²⁰ See Bainbridge, *supra* note 13, at 1057-1058 ("legislators and regulators are no less subject to bounded rationality and other cognitive biases than any other decisionmakers."); Jennifer Arlen, Comment: The Future of Behavioral Economic Analysis of Law, 51 Vand. L. Rev. 1765, 1769 (1998) ("Proposals designed to address biases generally entail the intervention of judges, legislators, or bureaucrats who are also subject to various biases. The very power of the behavioralist critique—that even educated people exhibit certain biases—thus undercuts efforts to redress such biases."); Donald C. Langevoort, Behavioral Theories of Judgment and Decision Making in Legal Scholarship: A Literature Review, 51 Vand. L. Rev. 1499, 1519 (1998) ("Less attention has been devoted to whether courts or regulators are likely to be biased along the lines suggested in the behavioral literature, perhaps because bureaucratic activity seems more organizational than individual."). For a more general account of the behavioral biases affecting government officials see Jeffrey J. Rachlinski and Cynthia R. Farina, Cognitive Psychology and Optimal Government Design, 87 Cornell L. Rev. 549 (2002).

against those affecting regulators? Obviously perfect regulation trumps an imperfect market. But we do not face this choice. Instead, we propose a framework for assessing regulation to correct for market biases. A cautious approach is warranted in this area because regulators themselves typically make the decision whether to intervene in the market. Overconfidence (or more mundane public choice reasons) may cause regulators to ignore their own behavioral limitations and push toward excessive intervention. Regulatory intervention to correct for biases also poses the very real danger of regulatory mistake. Once in place, new regulatory protections often take a life of their own, so even if regulations are ill conceived, they become difficult to displace. The market corrects its mistakes; regulators frequently resist doing so. Indeed, focusing on the behavioral problems of investors without also addressing the problems among regulators may lead to a perverse result. Investors—to the extent they were capable of learning and adjusting to cognitive limitations through feedback in the market—may come to rely (mistakenly) on regulators to protect them from themselves,²¹ diminishing the market's ability to overcome behavioral biases on its own. We therefore argue that regulations designed to remove investment choices from individual decisionmaking require very strong evidence to justify them. Other forms of regulatory interventions disrupt markets less. So, for example, we are more open to regulations intended to assist investors in overcoming their behavioral biases. Investor education might be one such intervention.

Part II summarizes some of the cognitive defects found by psychologists and reviews the evidence that these defects affect the financial markets. Part III applies the insights of behavioral economics to the SEC (and other regulators). Part IV sets forth a framework for comparing SEC and market-based responses to cognitive biases. Part V concludes.

²¹ Indeed, investors may themselves become overconfident in the ability of regulators to provide air-tight protections, leading to perhaps even greater investor losses. See Langevoort, *supra* note 15, at 175 (citing Henry

II. The Behavioral Approach to Securities Regulation

Some call behavioral law and economics the growth stock of legal academia,²² a contention born out by the increasing number of articles employing the behavioral approach.²³ A common theme runs through this literature: it is simply wrong to assume that people act rationally with every decision.²⁴ In this Part we (A) discusses biases in the context of investors; (B) discuss alternative explanations for investor behavior (including a preference for speculation); and (C) comment on the possible magnitude of behavioral biases among investors.

A. Investor Biases

What biases plague human decisionmaking? Psychologists have identified a long list, including the availability bias,²⁵ the hindsight bias,²⁶ the (flawed) reliance on heuristics,²⁷ the

T.C. Hu, Faith and Magic: Investor Beliefs and Government Neutrality, 78 Tex. L. Rev. 777 (2000))

²² See Kent Greenfield, Using Behavioral Economics to Show the Power and Efficiency of Corporate Law as Regulatory Tool, 35 UC Davis L. Rev. 581, 583 (2002).

²³ As a crude test, we performed a Westlaw search among law review articles for the word “behavioral” in the title. There were 14 articles listing 2001 as the publication year compared with only 6 listing 1997.

²⁴ It is hard to quarrel with this proposition; rational choice economists have always conceded that this fundamental assumption was a crude, albeit useful, simplification. See Milton Friedman, The Methodology of Positive Economics, in *Essays in Positive Economics* 3-43 (1953).

²⁵ Under the availability bias, people place undue weight on recent events and other readily available information. The availability bias may lead people to discount excessively the possibility of losses from high magnitude but low probability risks if such a loss has not occurred recently. Conversely, immediately after a loss does occur (e.g., an earthquake in San Francisco or a financial meltdown at Enron), people may exaggerate the probability of future loss. See Amos Tversky & Daniel Kahneman, Judgment Under Uncertainty: Heuristics and Biases, 185 Science 1124, 1127-28 (1974).

²⁶ The hindsight bias describes the tendency to place too great a weight on events that actually did occur in the past (rather than events that might have occurred but did not) in predicting the probability of events. See Baruch Fischhoff, Hindsight Is Not Equal To Foresight: The Effect of Outcome Knowledge on Judgment Under Uncertainty, 104 J. Experimental Psychology: Human Perception & Performance 552 (1975). Similarly, people tend to give too little weight to large samples and too much weight to small samples in drawing inferences on the characteristics of an overall population. See Tversky and Kahneman, *supra* note 25; Amos Tversky and Daniel Kahneman, Belief in the Law of Small Numbers, 76 Psychology Bulletin 105 (1971).

²⁷ People may use heuristic shortcuts to manage large quantities of information (operating under bounded rationality). Heuristics, of course, are not always inaccurate. Indeed, their survival over time provides some evidence that heuristics provide a cost-effective way of arriving at an answer that generally will be correct. In specific situations, however, heuristics may lead users astray. For example, people are more willing to accept the truth of a statement that is easy to understand (the “illusion of truth”). See R. Reber and N. Schwarz, Effects of

presence of overconfidence and overoptimism,²⁸ the endowment effect (and other framing related biases),²⁹ and the confirmation bias.³⁰ Several commentators have attempted to

Perceptual Fluency on Judgments of Truth, 8 *Consciousness and Cognition* 338 (1999). Once heuristics become entrenched, people may be unable to discern when a heuristic is inappropriate for a particular situation.

²⁸ Experts, in particular, may also develop a sense of overconfidence, leading to a countervailing increase in errors. See John Jacob, et al., *Expertise in Forecasting Performance of Security Analysts*, 28 *J. Accounting & Econ.* 51 (1999); Michael Mikhail et al., *The Development of Expertise: Do Security Analysts Improve their Performance with Experience?*, *J. Accounting Res.* 131 (1997); Dale Griffin and Amos Tversky, *The Weighing of Evidence and the Determinants of Confidence*, 24 *Cognitive Psychology* 411 (1992). Overconfidence is not necessarily bad. In investment markets, overconfidence may cause traders to take on greater risks, which may lead to greater returns. See Simon Gervais & Terrance Odean, *Learning To Become Overconfident*, 14 *Rev. Fin. Stud.* 1 (2001). Overoptimism is a closely related bias. See MAX H. BAZERMAN, *JUDGMENT IN MANAGERIAL DECISION MAKING* 37-39 (3rd ed. 1994); Neil D. Weinstein, *Unrealistic Optimism About Future Life Events*, 39 *J. Personality & Soc. Psychol.* 806 (1980). Some amount of overoptimism, of course, can be useful. See Jeffrey J. Rachlinski, *The "New" Law and Psychology: A Reply to Critics, Skeptics, and Cautious Supporters*, 85 *Cornell L. Rev.* 739, 760 (2000) (noting that "[p]sychologists have shown, for example, that only clinically depressed people make accurate predictions about their likelihood of success.").

²⁹ The endowment effect describes the greater value that people place on things presently in their possession. See Richard H. Thaler, *Toward a Positive Theory of Consumer Choice*, 1 *J. Econ. Behav. Organ.* 39 (1980). People frequently demand more to sell an item than they would be willing to pay for the same item. See Daniel Kahneman, Jack L. Knetsch & Richard H. Thaler, *Experimental Tests of the Endowment Effect and the Coase Theorem*, 98 *J. Political Econ.* 1325 (1990). In other words, the framing of the question (whether to buy or sell the same item) may affect the valuation of an item. The magnitude of the endowment effect, however, may vary with the context. Jennifer Arlen, Matt Spitzer, and Eric Talley have shown that framing a relationship as an agency one appears to reduce the overall impact of the endowment effect. See Arlen, Spitzer, Talley, *supra* note 33. The endowment effect is also reduced for goods with close substitutes. See Russell Korobkin, *The Endowment Effect and Legal Analysis*, at 16 (forthcoming *Nw. U. L. Rev.* 2002). Securities, of course, would be a paradigm of such a good. See Richard A. Brealey & Stewart C. Myers, *Principles of Corporate Finance* 345 (5th ed. 1996).

Endowment effects are related to loss aversion, which describes the phenomenon of people valuing the avoidance of a loss much higher than an improvement of the same magnitude over their current position. See Amos Tversky & Daniel Kahneman, *Loss Aversion and Riskless Choice: A Reference-Dependent Model*, 106 *Q. J. Econ.* 1039 (1991); Daniel Kahneman & Amos Tversky, *Prospect Theory: An Analysis of Decision Under Risk*, 47 *Econometrica* 263 (1979). Loss aversion informs people's notions of fairness: people are more offended by shifts away from the norms in transactions that result in harm to consumers and workers than by failures to improve the terms of trade for those individuals. See Daniel Kahneman, Jack L. Knetsch & Richard H. Thaler, *Fairness as a Constraint on Profit Seeking: Entitlements in the Market*, 76 *Am. Econ. Rev.* 728 (1986); Daniel Kahneman, Jack L. Knetsch & Richard H. Thaler, *Fairness and the Assumptions of Economics*, 59 *J. Bus.* S285 (1986). People may have a general bias toward the status quo. See William Samuelson & Richard Zeckhauser, *Status Quo Bias in Decision Making*, 1 *J. Risk & Uncertainty* 7 (1988).

³⁰ The confirmation bias induces people to confirm prior decisions regardless of whether the decisions were correct when made. See, e.g., Charles G. Lord, Lee Ross & Mark R. Lepper, *Biased Assimilation and Attitude Polarization: The Effects of Prior Theories on Subsequently Considered Evidence*, 37 *J. Personality & Social Psychology* 2098 (1979); R. Forsythe et al., *Anatomy of an experimental political stock market*, 82 *Am. Econ. Rev.* 1142 (1992). For example, suppose an individual makes an ill-advised decision to purchase an expensive convertible to drive himself to work. Even after discovering that the costs of such a car in the Michigan winter far outweigh the benefits, the person may then invent new perceived benefits (such as the thrill of the Italian leather in the car) to justify the purchase. And he may fail to recognize some of the costs attributable to the car, such as his daughter's increased number of colds from sitting in the back seat of this drafty vehicle. See Langevoort, *supra* note 14, at 142 ("Once a person voluntarily commits to an idea or course of action, there is a strong motivation to resist evidence that it was ill-chosen."). This example is not drawn from personal experience; it is an ill-advised choice that Pritchard intends to make in the future. His unfortunate daughter will just have to bundle up.

categorize the biases.³¹ Despite efforts at categorization, no underlying theory behind why we operate under biases has emerged.³² Instead of a theory, behavioral economics relies on a hodgepodge of evidence showing the ineffectiveness of human decisionmaking in various circumstances (often in a controlled, laboratory setting).³³ Many questions therefore remain unanswered including: (a) how can we measure the magnitude of the various bounded aspects of rationality and (b) what effect will particular regulatory reforms have in overcoming people's bounded nature (if this is even a desirable policy goal).³⁴ How do we ameliorate such biases if

³¹ Christine Jolls, Cass Sunstein, and Richard Thaler ("JST") classify behavioral biases according to the qualification that the behavioral bias imposes on the rational man assumption: bounded rationality, bounded willpower, and bounded self-interest. See generally Christine Jolls, Cass Sunstein, Richard Thaler, *A Behavioral Approach to Law and Economics*, 50 *Stan. L. Rev.* 1471, 1473 (1998). While useful descriptively, JST's grouping does not move us forward in determining biases' underlying causes. JST offer no theory of how we process information. Rather, JST simply group empirically similar phenomena together (based on their impact on the rational man assumption). One could similarly group birds and airplanes together (both can fly) – without explaining how birds and airplanes remain airborne.

Jeffrey Rachlinski classifies behavioral biases based on their source within the human brain's information processing apparatus. See Rachlinski, *supra* note 28. Rachlinski identifies three categories of biases: (1) overoptimism, the fact that people act as if their abilities and memory are limitless when in fact there are limits; (2) heuristics, short-cuts that people use without being aware of them; and (3) people's tendency to react to things in a relative way (rather than an absolute way) in making decisions. See *id.* at 750-52. Rachlinski's division sheds light on the origins of behavioral biases. Our brains' tendencies to act without limits, take short cuts, and interpret phenomena in a relative manner lead to systematic behavioral biases. Rachlinski's division, nonetheless fails to explain why our brains in fact process information in this manner.

Yet other ways of organizing the myriad biases are possible. See Hal R. Arkes, *Costs and Benefits of Judgment Errors: Implications for Debiasing*, 110 *Psychol. Bull.* 486, 486-87 (1991) (dividing behavioral biases into strategy, associational, and psychophysically-based errors and contending that the benefits obtained from the biases generally outweigh the costs of the biases).

³² See Bainbridge, *supra* note 13, at 1035 ("To date, behavioral economics has not (and may not ever) develop a single theory that explains or predicts the full range of human behavior, as rational choice theory claims to do. Instead, it offers a pragmatic collection of 'situation-specific mini-theories useful in the analysis of discrete legal problems.'"); Richard A. Posner, *Rational Choice, Behavioral Economics, and the Law*, 50 *Stan. L. Rev.* 1551, 1560-61 (1998) (contending that proponents of behavioral economics "have no theory, but merely a set of challenges to the theory-builders, who in the relevant instances are rational-choice economists and, I am about to suggest, evolutionary biologists.").

³³ See Jon D. Hanson & Douglas A. Kysar, *Taking Behavioralism Seriously: The Problem of Market Manipulation*, 74 *N.Y.U. L. Rev.* 630, 715 (1999). Whether these experimental results can be duplicated in business settings is open to question. See Jennifer Arlen, Matthew Spitzer, Eric Talley, *Endowment Effects Within Corporate Agency Relationships*, 31 *J. Leg. Stud.* 1 (2002) (providing an experimental test for the importance of endowment effect for individuals situated in an agency relationship and finding little evidence of the effect). For a comment on the value of the experimental data see Mitchell, *supra* note 6, at 7 (forthcoming, 2002) ("Behavioral law and economics bases its model of bounded rationality on a very limited set of empirical data and draws insupportable conclusions about human nature from this partial data set.").

³⁴ And what if some of the biases are countervailing, effectively canceling each other out? See Jon D. Hanson & Douglas A. Kysar, *Taking Behavioralism Seriously: The Problem of Market Manipulation*, 74 *N.Y.U. L. Rev.* 630, 689 (1999) ("Kahneman and Tversky's decisionmaker may subject to conflicting biases: For instance, the

we don't understand their origins or how they respond to various policy levers? The lack of a developed theory is not so much a fault of the behavioral school as it is a sign that the school is still in its infancy.³⁵ Nonetheless, it does suggest that legal scholars should use behavioral economics with caution.³⁶

Despite these gaps, various legal scholars have taken insights from behavioral law and economics and applied them to the securities markets.³⁷ Some have written, for example, that investors often act with overconfidence in their investment abilities.³⁸ Investing encompasses a wide range of choices, including the type of risk an investor is willing to bear, the class of financial product (e.g., bonds versus equity) in which the investor will place his money, and within that class, which instruments provide the best return for a given risk level.³⁹ Commentators have argued that investors often do not recognize how difficult these choices are, instead relying on a belief that their innate abilities will lead to a good investment result.⁴⁰ The

endowment effect may cause one to want to retain an asset that is dropping in market value while the maxim of loss aversion counsels abandonment.”).

³⁵ See Rachlinski, *supra* note 28, at 752 (“Because the field is still new, [behavioral decision theory] sometimes appears to be a loose collection of aberrations, but researchers in the field are working toward developing general theories of human judgment and choice.”). But see Posner, *supra* note 32, at 1552 (arguing that “behavioral economics is . . . antitheoretical”). Posner provides an evolutionary biology explanation of the source of at least some seemingly irrational forms of behavior. See *id.* at 1561-1564. Posner theorizes that much of what is irrational today would have been perfectly rational in a pre-law society where people tended to live (and stay isolated with) a small group of close relatives and were motivated out of desire to see as many of their genes as possible move on to the next generation. Thus, altruism makes sense when the recipients of such kindness tended to be close genetic relatives. See *id.* at 1561.

³⁶ See Mitchell, *supra* note 6, at 91-92 (forthcoming, 2002) (arguing that “legal scholars who have no training in the social sciences or who have only a superficial understanding of behavioral decision theory should refrain from behavioral decision theory’s unaided application to the law.”). Rachlinski is similarly critical of “[l]egal scholars who use [behavioral decision theory] [who] have unfortunately presented the field as if it had little or no order, logic, underlying theory, or limiting principles.” Rachlinski, *supra* note 28, at 750.

³⁷ The tendency to rush toward regulatory solutions when it comes to behavioral problems in the capital markets is not one shared among all commentators taking the behavioral economics approach. See *supra* note 20.

³⁸ As one example, Robert Prentice worries that investors will be overconfident in their abilities as traders, a problem exacerbated by the illusion of control, leading them to ignore the statistical evidence that active traders tend to trail market averages. See Prentice, *supra* note 14, at 1459-1460.

³⁹ This last decision may not be all that important, given that “the capital asset pricing model collapses the investment choice into one attribute—the security’s sensitivity to changes in the expected rate of return on the market portfolio (the stock beta).” Roberta Romano, A Comment on Information Overload, Cognitive Illusions, and Their Implications for Public Policy, 59 So. Cal. L. Rev. 313, 325 (1986).

⁴⁰ See, e.g., Jonathan Clements, The Stock Market Isn’t As Bad As You Think: The Right Moves for Tough

large number of day traders as the bull market peaked in the late 1990s supports the overconfidence hypothesis.⁴¹ Empirical work, moreover, has found that male traders, particularly younger men, trade more frequently than other groups of traders.⁴² More trading led to lower returns for these overconfident young men.⁴³ Similarly risky behavior can be seen in the heavy investments that people make in their employers' stock, an obvious mistake from the perspective of diversification.⁴⁴ Overoptimism implies that investors may neglect disclosure provisions intended to protect them from poor investments.

More generally, investors are often simply poor judges of probabilities.⁴⁵ Investors may suffer from the availability heuristic, unduly emphasizing recent events. Investors may underweigh low probability, high magnitude risks if no obvious examples of the risk have recently been brought to their attention. On the flip side, once a big event happens – such as the Enron scandal – investors may overreact, emphasizing the risk of fraud unduly.⁴⁶ Immediately after the Enron and WorldCom scandals in the United States, the net volume of money flowing into mutual funds actually turned negative for a period of time, even though the holders of diversified mutual funds are unlikely to suffer any significant reduction in their returns from fraud at any particular company.⁴⁷ Framing effects may also impair investor decisionmaking. When investors' stocks have lost value, they may hold onto the stocks longer than warranted in

Times, Wall St. J., Sept. 11, 2002 at D1 (noting that “[o]verconfident investors also attributed those gains to their own investment savvy, leading them to become even bolder in their investment bets.”).

⁴¹ See Aaron Elstein, Yes, Day Traders Still Exist, They Just Keep a Lower Profile, Wall St. J. D4 (Oct. 17, 2002) (estimating 400,000 people engaged in day trading at the height of the bull market).

⁴² See Brad Barber and Terrence Odean, Boys will be boys: Gender, overconfidence, and common stock investment, 116 Q. J. Econ. 261 (2001).

⁴³ See *id.*

⁴⁴ See G. Huberman, Familiarity Breeds Investment, Working Paper 9704, Columbia University (1999).

⁴⁵ See Hirshleifer, *supra* note 1, at 1545-1546.

⁴⁶ See Peter Klibanoff et al., Investor Reaction to Salient News in Closed-end Country Funds, 53 J. Fin. 673 (1999).

⁴⁷ See Shaheen Pasha, Redemptions Aren't Lone Villain, Wall St. J., Aug. 7, 2002 at D13 (reporting that investors pulled a net \$28.47 billion from stock funds in July, beating even the \$23.6 billion in withdrawals that ...were made in September following the terrorist attacks.”).

hope of reversing the losses.⁴⁸ Conversely, investors that make large investment gains may not value the gains as highly, taking on added risk with their gains (treating the gains much like “house” money in a casino).⁴⁹

Investors, like everyone else, need to be able to live with their decisions. Commentators have therefore argued that investors will often experience cognitive dissonance, rationalizing their prior investment decision no matter how poor the returns.⁵⁰ Such cognitive dissonance may then lead investors to delay selling poor investments. Biases that discourage selling may deter investors from the rational strategy of realizing losses for tax purposes at the earliest opportunity. The need to maintain self-esteem may prevent investors from learning from their mistakes, attributing their failures to chance rather than their own decisionmaking limitations.⁵¹ Successes, of course, will be attributed to investment skill.⁵²

Investors may also fail to process all relevant information on a particular security, employing heuristics and satisficing.⁵³ Rather than read a voluminous prospectus, an investor may rely simply on the identity of the managing underwriters, applying a heuristic that well-known underwriters often equate to lower risk offerings.⁵⁴ Even well-known underwriters, of

⁴⁸ See Hersh Shefrin and Meir Statman, *The Disposition To Sell Winners Too Early and Ride Losers Too Long: Theory and Evidence*, 40 J. Fin. 777 (1985).

⁴⁹ See, e.g., Clements, *supra* note 40, at D1 (noting that “[t]his increased appetite for risk was further bolstered by the ‘house money’ effect. Like casino gamblers who get lucky early in the evening, investors made so much money that they felt they could take a few extra chances. After all, even if they lost a little, they would still have handsome profits.”). See also Nicholas Barberis et al., *Prospect Theory and Asset Prices*, 66 Q.J. Econ. 1 (2001); Nicholas Barberis & Ming Huang, *Mental Accounting, Loss Aversion and Individual Stock Returns*, 56 J. Fin. 1247 (2001); Richard Thaler and E.J. Johnson, *Gambling with the House Money and Trying To Break Even: The Effects of Prior Outcomes on Risky Choice*, 36 Management Science 199 (1990).

⁵⁰ See Langevoort, *supra* note 16, at 659-660.

⁵¹ See *id.* at 639.

⁵² See *id.*

⁵³ See Tversky and Kahneman, *supra* note 25; Herbert A. Simon, *A Behavioral Model of Rational Choice*, 69 Q. J. Econ. 99 (1955).

⁵⁴ Some truth, of course, may attach to the underwriter-quality heuristic. See Richard B. Carter and Steven Manaster, *Initial Public Offerings and Underwriter Reputation*, 45 J. Fin. 1045, 1056-66 (1990); Richard B. Carter, Frederick H. Dark & Ajai K. Singh, *Underwriter Reputation, Initial Returns, and the Long-Run Performance of IPO Stocks*, 53 J. Fin. 285 (1998). Nonetheless, the question remains whether investors can accurately assess the precise risk of fraud even with a high reputation underwriter.

course, cannot guarantee against fraud, so investors following such a heuristic may underestimate their true risk of encountering fraud.

Investors may also fall prey to fads. During the Internet frenzy, firms that announced that they were changing their name to include “dot.com” experienced abnormal returns, regardless of whether the announcement coincided with a change in business plan.⁵⁵ After the Internet bubble popped, companies eliminating “dot.com” also enjoyed abnormal returns.⁵⁶

After perusing the growing behavioral finance literature, we wonder how investors are able to make any positive return from the market. Indeed, one proponent of the behavioral approach to finance, Robert Prentice, has observed that reading the literature may leave one with the impression that investors are “dunderheaded.”⁵⁷ Prentice quickly qualifies this impression with the notation that “not all heuristics and biases apply at all times and in all settings to all investors,”⁵⁸ but he fails to offer any guidance on when biases do in fact apply. We – and policymakers who must make regulatory choices – are left to guess.

B. Biases or Preferences?

In order to evaluate investors’ rationality, we must first consider a more fundamental question: Why do investors invest? The commonsense answer from the rational actor framework is that individuals use investments to smooth their incomes to match their consumption patterns.⁵⁹ Dollars are saved in high-income years so that consumption can be maintained in low-income years, (e.g., retirement) or heavy expenditure years (e.g. sending the

⁵⁵ See Michael J. Cooper, Orlin Dimitrov, and P. Raghavendra Rau, A Rose.com by Any Other Name, 56 J. Fin. 2371(2001).

⁵⁶ See Ken Brown, For Dot-Coms, New Names Are Good for a Pop, Wall St. J. C1 (reporting results of followup (Dec. 18, 2002) study by Cooper et al.).

⁵⁷ See Prentice, *supra* note 14, at 1489.

⁵⁸ *Id.*

children to college). Unfortunately, the data reflect substantial deviations from this model. Most conspicuously, investors trade much more frequently than would be required to satisfy liquidity needs and adjust their portfolios to match their risk preferences. What explains all this trading?

The behavioralists, as related above, provide one explanation – overconfidence in one’s own abilities. An alternative explanation is that many investors view the stock market as a substitute for gambling.⁶⁰ Many middle class individuals – who view lotteries as a foolish waste of money – may be engaged in similar behavior with their investments. They are pursuing the “next Microsoft,” hoping against the odds that they will become rich enough to leave their everyday jobs and lifestyles behind. At bottom, we suspect, is a utility function that favors a remote chance of striking it rich over the slow but steady gains from buying and holding a well-diversified portfolio.⁶¹ We do not share this speculative preference for our own investments,⁶² but we cannot dismiss it as irrational.⁶³

If regulators seek to protect investors from themselves and those who would prey on their weaknesses, regulators must first identify the specific ailments afflicting investors. Regulations designed to address behavioral biases may not help investors with speculative preferences. Indeed, these investors may enjoy their speculative investments; if so, it is hardly obvious that government should interfere with this preference, particularly if investors resent the interference.

⁵⁹ This intuition is closely related to the life cycle hypothesis, under which consumers attempt to smooth out their consumption over their lifetime. See Milton Friedman, *A Theory of the Consumption Function* (1957).

⁶⁰ See Lynn A. Stout, *Are Stock Markets Costly Casinos? Disagreement, Market Failure, and Securities Regulation*, 81 Va. L. Rev. 611 (1995).

⁶¹ See Ed McCaffery discusses this theory in the context of lotteries. See Edward J. McCaffery, *Why People Play Lotteries and Why It Matters*, 1994 Wis. L. Rev. 71. See also Theresa A. Gabaldon, John Law, with a Tulip, in *the South Seas: Gambling and the Regulation of Euphoric Market Transactions*, J. Corp. L. 225 (2001) (drawing parallels between gambling and speculative trading).

⁶² Both Choi and Pritchard put all their investment dollars into index funds. It’s very boring.

⁶³ Behavioral biases of course may feed the speculative instinct: the salience of Bill Gate’s success may obscure the much greater probability that a start-up venture will fail; the illusion of control in investing may lead these speculative investors to be overconfident of their chances of success; self-justification may cause them to attribute their past investment successes to skill while attributing their investment failures to chance. Nonetheless, the urge to speculate cannot be dismissed as entirely the product of bias.

Moreover, investors may all have some level of speculative preference and suffer from some cognitive defects, but it seems more plausible that the magnitude of such effects varies. Some segment of investors may seek to maximize their return (given the risk).⁶⁴ Other investors may act equally rationally but with a greater (and perhaps unwise) preference to engage in speculation. And still other investors face behavioral biases that impair their ability to process information and make decisions. Different regulatory responses might be needed for these varying characteristics among investors.⁶⁵

C. The Questionable Importance of Biases

Conceding that some biases are genuine cognitive errors with a significant effect on behavior, the behavioralist school must still address at least three possible responses to their critique of the financial markets. First, some behavioral biases may counteract each other. Prentice notes that “people tend to ignore low probability risks” and this may cause investors to underestimate the probability of fraud under a market regulatory regime.⁶⁶ Putting to one side Prentice’s prediction of rampant fraud under such a regime, more troubling is his omission of the other bias in calculations of probability, which is that people tend to *overestimate* the probability of salient risks. For example, people wildly overestimate the risks of flying because plane crashes are newsworthy. Car crashes are much more common but far less salient. If recent press coverage is any indicator, fraud is more like plane crashes than car crashes. If anything, investors are likely to exaggerate the likelihood of fraud given its salience. Prentice argues,

⁶⁴ Warren Buffett might be the paradigm of this approach. In 1997 the Cardozo Law Review held a symposium in honor of Warren Buffett. See Lawrence A. Cunningham, Introduction to the Warren Buffett Symposium Papers, 19 Cardozo L. Rev. 221 (1997) (surveying the symposium papers).

⁶⁵ For a proposal to shift the focus of securities regulation from issuers to investors see Stephen J. Choi, Regulating Investors Not Issuers: A Market-Based Proposal, 88 California Law Review 280 (2000).

⁶⁶ See Prentice, *supra* note 14, at 1482.

however, that: “Due to the availability heuristic, investors bombarded with advertisements about the reliability of a brokerage firm are likely to believe them despite numerous problems with company’s true actions.”⁶⁷ But availability bias is affected by the salience of the information presented. Newspaper headlines reporting of securities industry scandals seem much more salient than the industry’s commercials.⁶⁸ A believer in the availability bias might well predict that investors (upon reading about Enron, WorldCom, Tyco, and so on) would overestimate the risks of fraud. Predicting which effect will dominate is a hazardous business.⁶⁹

The second point: Not all investors are dunderheads! While a range of behavioral biases may exist in the general population, self-selection affects the level of biases in a particular profession. Richard Posner has observed that those with an oversized sense of fairness will not choose to enter highly competitive professions.⁷⁰ Similarly, those with poor investment decisionmaking skills may opt out of the capital markets altogether. This is not to say that biases are eliminated (and new investors arrive daily to the market), but they may be less significant than in the general population. Moreover, if behavioral biases vary across investors, perhaps regulations could be tailored to address the needs of the specific groups of investors while letting market forces work in other areas.⁷¹ This strategy, however, carries risks; if investors are unaware of their biases, they may resent being categorized with the cognitively challenged.

The third point builds on the second. Institutions have emerged to aid individuals with poor decision-making skills. Investors can purchase financial expertise by investing through an

⁶⁷ Id. at 1431-1432.

⁶⁸ See Michale Orey & Milo Geyelin, *Lawyers Find Jury Pools Polluted by Antibusiness Biases*, Wall St. J. B1 (Aug. 12, 2002) (reporting that lawyers selecting jurors find considerable distrust of business ethics in the wake of recent high-profile scandals).

⁶⁹ More self-interested policymakers may then abuse the malleability of behavioral biases, framing their favored regulatory programs in a way to take advantage of the public’s biases.

⁷⁰ See Posner, *supra* note 32, at 1570 (“People who are unusually ‘fair’ will avoid (or, again, be forced out of) roughhouse activities—including highly competitive businesses, trial lawyering, and the academic rat race.”).

⁷¹ See Choi, *supra* note 65.

intermediary. Intermediaries may not be subject to cognitive biases to the same degree as people making decisions for themselves; detachment may enhance decisionmaking.⁷² Mutual funds help investors choose investments in addition to providing low cost diversification. Financial planners assist investors in developing an appropriate portfolio of investments. Brokers also provide investment advice to their clients. The prevalence of these institutions suggests that overconfidence among investors may be a relatively isolated phenomenon.

Donald Langevoort points out, however, that institutions themselves (more precisely, people who work for institutions) may also suffer from behavioral biases.⁷³ Even institutional investors suffer from loss aversion. Money managers that fail to meet a perceived benchmark, for example, may take overly risky positions in an attempt to “catch up.”⁷⁴ Money managers may also discount small, low probability risks, and act overconfidently.⁷⁵ They are also subject to framing effects: analysts give more favorable earnings forecasts to firms that lowball pre-announcements of earnings.⁷⁶ Anchoring and overoptimism also seem to be at work: analysts

⁷² See James D. Marshall et al., Agents’ Evaluations and the Disparity in Measures of Economic Loss, 7 J. Econ. Beh. & Org. 115 (1986) (finding no endowment effect for subjects placed in the role of advisors); Michael J. Roszkowski & Glenn E. Snelbecker, Effect of Framing on Measures of Risk Tolerance: Financial Planners are Not Immune, 19 J. Behav. Econ. 237, 245 (1990) (“The bad news is that financial planners are prone to the same framing bias that occurs with the population-at-large . . . The ‘good’ news conveyed by our results is that financial planners seem to be more cautious in how they handle their client’s money than their own money.”). But see Russell Korobkin, Status Quo Bias and Contract Default Rules, 83 Cornell L. Rev. 608 (1998) (finding status quo bias among law students asked to negotiate contracts for hypothetical clients).

⁷³ See Langevoort, *supra* note 16. Prentice argues in a similar vein that institutional investors will be unable to protect themselves because “[a]s with most other behavioral foibles, the availability heuristic affects professional investors as well as amateurs, perhaps even more.” Prentice, *supra* note 14, at 1432. See also Hirshleifer, *supra* note 1, at 1537 (“It is not obvious that layering agency over folly improves decisions.”).

For a useful survey of research findings relating to the use of financial accounting, see Robert Libby, Robert Bloomfield & Mark W. Nelson, Experimental Research in Financial Accounting (Working Paper, Johnson Graduate School of Management, Cornell University, 2001).

⁷⁴ See Langevoort, *supra* note 16, at 643 (“A string of losses can cause the agent to assume more risk simply to get back to even, especially if failure to do so might result in termination and severe reputational penalty.”).

⁷⁵ See Don A. Moore et al., Positive Illusions and Forecasting Errors in Mutual Fund Investment Decisions, 79 Org. Behavior & Human Decision Processes 95 (1999); David Hirshleifer et al., Security Analysis and Trading Patterns When Some Investors Receive Information Before Others, 49 J. Fin. 1665 (1994).

⁷⁶ See H. Tan, R. Libby & J. Hunton, Analysts’ Reactions to Earnings Pre-Announcement Strategies, Working Paper, Cornell University (2000).

underreact to unfavorable information but overreact to favorable information.⁷⁷ They also appear to underweight evidence of earnings management.⁷⁸ Auditors may provide little check on earnings management if their biases cause them to favor their clients' views.⁷⁹

Worse yet, instead of leading investors away from their behavioral biases, financial professionals may prey upon investors' behavioral quirks.⁸⁰ Brokers may realize that cognitive dissonance may cause investors to ratify even unsound decisions once they are made.⁸¹ Having placed their trust in their brokers, investors may give them substantial leeway,⁸² opening the door to opportunistic behavior by brokers, who may steer investors toward poor or inappropriate investments.⁸³ Investors also may choose poorly among available investments: flows into mutual funds tend to follow funds that have enjoyed extraordinary performance.⁸⁴ While this strategy has intuitive appeal, that performance does not persist.⁸⁵ As Kent Daniel and his colleagues point out: "The fact that vast amounts of invested wealth are placed in funds that appear to be wasting resources on active management does not support the view that investors

⁷⁷ See J. C. Easterwood & S. R. Nutt, *Inefficiency in Analysts' Earnings Forecasts: Systematic Misreaction or Systematic Optimism?*, 54 J. Fin. 1777 (1999).

⁷⁸ See S.H. Teoh, & T. Wong, *Why Do New Issues and High Accrual Firms Underperform? The Role of Analysts' Credulity*, Rev. Fin. Stud. (2001). Of course, other reasons may explain the failure of analysts to provide accurate investment advice. Analysts, for example, may purposefully skew their opinions toward management in return for indirect compensation in the form of high investment banking fees. For a more detailed discussion of analyst corruption, see Stephen Choi and Jill Fisch, *How to Fix Wall Street: A Voucher Financing Proposal* (working paper 2002).

⁷⁹ See Max H. Bazerman, George Loewenstein, and Don A. Moore, *Why Good Accountants Do Bad Audits*, Harv. Bus. Rev. 97, 100 (Nov. 2002).

⁸⁰ See Elaine A. Welle, *Freedom of Contract and the Securities Laws: Opting Out of Securities Regulation by Private Agreement*, 56 Wash. & Lee L. Rev. 519, 581 (1999) (arguing that permitting contractual waiver of the securities laws "would permit securities-industry professionals . . . to use cognitive distortions to solicit waivers at a time when an investor is most vulnerable. Rather than encouraging these Faustian bargains, we should be protecting investors from such predatory conduct.").

⁸¹ See Langevoort, *supra* note 16, at 660 ("The customer . . . has ample means to rationalize short-run poor performance of an individual investment as something other than the product of bad advice and bad decisions.").

⁸² See Donald C. Langevoort, *Ego, Human Behavior, and Law*, 81 Va. L. Rev. 853, 879 (1995) ("Having committed to a particular expert . . . investors feel a strong tendency to bolster their choice.").

⁸³ See Langevoort, *supra* note 16, at 661.

⁸⁴ See E. R. Sirri & P. Tufano, *Costly Search and Mutual Fund Flows*, 53 J. Fin. 1589 (1998).

⁸⁵ See M.M. Carhart, *On Persistence in Mutual fund Performance*, 52 J. Fin. 57 (1997); M. Grinblatt, S. Titman & R. Wermers, *Momentum Investment Strategies, Portfolio Performance, and Herding: A Study of Mutual*

are good at choosing funds, nor that funds make good choices on behalf of investors.”⁸⁶ And the amount being wasted on active management is not chump change: mutual fund investors spend more than \$10 billion per year on excess fees for active mutual fund management.⁸⁷

Organizational culture within institutions may exacerbate behavioral problems. Writing more generally about the possibility of cognitive dissonance in corporate entities, Langevoort poses the question of why managers in a corporation may lie even when the gain from deception is small, such as when the corporation is not issuing securities and the managers are not engaged in insider trading.⁸⁸ Langevoort argues that group cognitive dissonance may lead to corporate lying. An entity’s culture, for example, may foster overoptimism, which may lead managers (perhaps unwittingly) to mislead investors about future profitability.⁸⁹ Managers may also fall prey to a confirmation bias, causing them to misrepresent the viability of previously adopted strategies.⁹⁰ Managers suffering from bounded rationality may ignore danger signals, causing the firm to withhold important information from the public.⁹¹ Langevoort argues that competition will not necessarily weed out organizations suffering from group cognitive dissonance because the same overoptimism that leads to the misrepresentations may also promote morale and productivity.⁹² Naïve optimism may enhance the bottom line. In addition, biases toward the status quo and ignoring small danger signs may make it easier to handle vast

Fund Behavior, 85 Am. Econ. Rev. 1088 (1995).

⁸⁶ See Kent Daniel, David Hirshleifer, and Siew Hong Teoh, Investor Psychology in Capital Markets: Evidence and Policy Implications, at 32 (Working Paper, August 3, 2001)

⁸⁷ See *id.* at 43. See also Gregory Baer & Gary Gensler, The Great Mutual Fund Trap (2002) (amassing evidence that actively-managed mutual funds overwhelmingly trail the returns of the overall market while taking on greater amounts of risk).

⁸⁸ See Donald C. Langevoort, Organized Illusions: A Behavioral Theory of Why Corporations Mislead Stock Market Investors (and Cause Other Social Harms), 146 U. Pa. L. Rev. 101 (1997).

⁸⁹ See *id.* at 139.

⁹⁰ See *id.* at 142-143.

⁹¹ See *id.* at 147.

⁹² See *id.* at 155.

information flows.⁹³ The alternative of attempting to process rationally all available information could lead to organizational paralysis.

Institutions do suffer from behavioral biases. Nevertheless, just as not all investors are “dunderheads,” institutions will not suffer from behavioral biases equally. If institutions can overcome some biases that plague investors then institutions can improve the functioning of the capital markets. Moreover, while some amount of biases may be beneficial for institutions and therefore resistant to competitive pressures (such as overoptimism), such biases will have limited impact on investor welfare. Institutional-based biases that have large negative impacts on investors will impair profitability, making those institutions vulnerable to competition from other institutions. There is also evidence that incentives – if sufficiently large – can ameliorate some biases.⁹⁴ For example, pricing anomalies tend to disappear once they have been identified.⁹⁵ Even if institutions persist with some low level of biases, the question remains whether regulation – by inevitably fallible regulators – can improve investor welfare. If investors act irrationally, will intervention help?

III. Behavioral Biases within the SEC

For argument’s sake, we accept the premise that behavioral problems exist in the financial markets, that both investors and the institutions that assist them suffer from these biases, and that they are problematic in their scope and magnitude. Even accepting these points,

⁹³ See *id.* at 152.

⁹⁴ See Vernon L. Smith & James M. Walker, Monetary Rewards and Decision Cost in Experimental Economics, 31 *Econ. Inquiry* 245 (1993). But see Dan N. Stone & David A. Ziebart, A Model of Financial Incentive Effects in Decision Making, 61 *Organizational Behavior & Human Decision Processes* 250 (1995) (“[I]t seems plausible that financial incentives may help prevent decision errors that arise from insufficient attention, but may exacerbate those that arise from faulty intuition or task misperception. Further, in contradiction to arguments made by some economists, very high incentives may potentially *decrease* (not increase) decision quality by increasing negative affect.”).

⁹⁵ See Hirshleifer, *supra* note 1, at 1538-1539 (citing “the disappearance of the size effect” and a lack of

however, those who believe strongly in cognitive biases among investors must explain why similar biases do not also affect regulators. Behavioralists must account for cognitive biases among regulators (and the likelihood that such biases are often greater in magnitude than those facing investors).⁹⁶

Applying the insights from behavioral economics, we catalog a series of biases that SEC officials may face. Organizations may evolve and adapt to minimize the impact of biases.⁹⁷ Nevertheless, just as such biases may persist within professional institutions, they may cling stubbornly to SEC regulators. This possibility is heightened by the fact that the SEC does not face competition, which may whittle down biases within private organizations. Moreover, biases specific to groups of regulators are also possible in ways that do not afflict individual investors.

A. Cataloging the Biases at the SEC

It is impossible to compile a comprehensive list of biases that may affect SEC officials. Indeed, we freely concede that, as with other attempts to apply behavioral insights to the law, our account is necessarily ad hoc. Nonetheless, we find evidence of many of the biases identified by the behavioralists in the SEC's regulatory positions. Other explanations are possible for SEC policy decisions, including public choice accounts.⁹⁸ We believe that a behavioral analysis can

persistence for the value effect).

⁹⁶ See Kent Daniel, David Hirshleifer, and Siew Hong Teoh, *Investor Psychology in Capital Markets: Evidence and Policy Implications*, at 32 (Working Paper, August 3, 2001) (arguing that "the case for laissez faire rests most persuasively not on extreme information efficiency of private markets, but on the comparative information and resource inefficiency of the political process."); Posner, *supra* note 32, at 1575 ("The expert, too, is behavioral man. Behavioral man behaves in unpredictable ways. Dare we vest responsibility for curing irrationality in the irrational?").

⁹⁷ See Chip Heath, Richard P. Larrick & Joshua Klayman, *Cognitive Repairs: How Organizational Practices Can Compensate for Individual Shortcomings*, 20 *Res. in Org. Behavior* 1 (1998).

⁹⁸ See, e.g., Jonathan Macey, *Administrative Agency Obsolescence and Interest Group Formation: A Case Study of the SEC at Sixty*, 15 *Cardozo L. Rev.* 909 (1994).

complement and enrich the public choice story.⁹⁹

1. *Bounded Search*

Bounded search at the SEC may blind regulators to possible alternatives to regulation.¹⁰⁰ The SEC is not known for regulatory creativity, often attempting to tackle difficult problems of corporate governance with measures invariably derived from some variant of disclosure. Disclosure traditionally has been justified as a means of exposing potentially problematic activities. Justice Louis Brandeis' oft-quoted phrase that "sunlight is the best disinfectant" provides a succinct summary of the philosophy behind disclosure.¹⁰¹ Once investors (and others) can see such activities clearly, then market participants are less likely to engage in opportunistic behavior in the first place. Managers considering a self-dealing transaction, for example, may choose not to do so when related-party transactions must be disclosed.¹⁰² In addition to ferreting out agency costs, disclosure may assist rational investors in allocating their investment dollars, leading to better use of capital and more accurate securities prices.

For behavioralists, the single-minded focus of the SEC on disclosure presents a puzzle. We doubt that disclosure is the optimal regulatory strategy if most investors suffer from cognitive biases. Disclosure may be ineffective in educating investors who suffer from biases in decisionmaking.¹⁰³ Investors suffering from an overconfidence bias, for example, may ignore

⁹⁹ See Jolls et al., *supra* note 31, at 1543 ("Availability entrepreneurs in the private sector can heighten the demand for regulation, and public sector availability entrepreneurs can take advantage of, and heighten, this effect, by advocating anecdote-driven policy. Thus public choice accounts of legislation can work productively with behavioral accounts; there is a good deal of synergy between behavioral mechanisms and interest group leaders, many of whom are amateur (or professional?) behavioral economists.").

¹⁰⁰ See Heath et al., *supra* note 97, at 9-10 (discussing tendency of individuals to unduly constrict search for solutions to problems).

¹⁰¹ See LOUIS BRANDEIS, *OTHER PEOPLE'S MONEY* 92 (1932 ed.).

¹⁰² See Paul Mahoney, *Mandatory Disclosure as a Solution to Agency Problems*, 62 U. Chi. L. Rev. 1047 (1995).

¹⁰³ See Langevoort, *supra* note 82, at 880 ("[W]e can readily see why the law's prized warnings and

the warning signs from disclosure. Similarly, it is unclear how disclosure can overcome the cognitive dissonance of people who have made a poor investment choice in the past. Investors with intractable loss aversion will continue holding a losing position in hopes of reversing their losses without regard to disclosure. And what disclosure will help them avoid ratifying their poor investment choices as “good” decisions? Finally, investment decisions may be driven in substantial part by the conversations that investors have had most recently. Disclosure may do little to influence investment decisions based on “tips” or fads.¹⁰⁴

The SEC’s fixation with disclosure can also be seen in its efforts to protect investors from fraud in the wake of the Enron and WorldCom scandals. In response, the SEC proposed requiring corporate chief executive officers to certify corporate financial statements annually. Congress, anxious to be seen “doing something,” followed this proposal with legislation enacting the CEO certification requirement into law.¹⁰⁵ Investors plagued with overconfidence, however, may fail to appreciate the risks posed by companies for which the CEO has failed to provide an unqualified certification. On the other hand, investors may place too much weight on a salient recent certification, ignoring (under the influence of the availability heuristic) more distant evidence of wrongdoing and other risks posed by corporate management. And certification will not overcome framing effects, including loss aversion by investors.¹⁰⁶ Given these behavioral difficulties with disclosure as a regulatory tool, the SEC’s continued reliance on disclosure suggests unduly narrow search within the SEC.

disclosure will so often have relatively little practical effect, especially if they are formalized into boilerplate. Investors and consumers want to think the warnings are meant for someone else, not them.”).

¹⁰⁴ See Robert J. Shiller and J. Pound, Survey Evidence on the Diffusion of Interest and Information Among Investors, 12 J. of Econ. Behavior and Org. 46 (1989).

¹⁰⁵ See Sarbanes Oxley Act of 2002, Sec. 302(a) (Corporate Responsibility For Financial Reports).

¹⁰⁶ More troublingly, disclosure may exacerbate some agency costs. In recent experimental work, Cain et al. found that advisors whose compensation was tied to how high their clients’ estimates were, made even *more* biased estimates if their conflict was disclosed to their client-estimator. Worse yet, disclosure did not cause the estimators to discount the advice provided by their conflicted advisor.

Perhaps disclosure's continued allure for the SEC comes from its status as a "compromise" solution, midway between doing nothing and regulating substantive conduct.¹⁰⁷ In part, the SEC's regulatory strategy reflects the broad grants of authority to the agency to mandate corporate disclosures under the 1933 and 1934 Acts.¹⁰⁸ Alternatives to disclosure generally would require the SEC to seek statutory authorization from Congress. To get that authority, however, would almost certainly require the SEC to make an empirical showing to justify the need for a new regulatory tool. Even though it relies on disclosure as the cure-all for the maladies of securities markets, the SEC has done surprisingly little to investigate the impact that disclosure has on those markets.¹⁰⁹ The agency instead prefers to remain above the grubbiness of empirical data, preferring to ground its policy prescriptions in "investor confidence."¹¹⁰ Significantly, the SEC avoids any meaningful definition of investor confidence, thereby avoiding the possibility of empirical contradiction.

2. *Bounded Rationality*

The SEC receives vast amounts of information: registration statements from companies making public offerings; periodic filings for public companies, as well as the myriad filings for secondary market transactions;¹¹¹ yet more information comes from the various securities

¹⁰⁷ See Langevoort, *supra* note 96, at 1504-05 (arguing that "the relative preference as between two options may be unduly affected by the availability of alternatives, particularly if they involve compromise possibilities.").

¹⁰⁸ The SEC's campaign to mandate "one share, one vote" in the 1980's ran afoul of this limitation. See *SEC v. Business Roundtable* (D.C. Cir.)

¹⁰⁹ See Langevoort, *supra* note 15, at 173 ("[T]he Commission has never studied investor behavior deeply enough to say – publicly at least – what percentage of investors read or understand these documents, or what influence the fundamental analysis-oriented disclosure has on their investment decisions.").

¹¹⁰ See *infra* note 163 and accompanying text (citing the SEC's uncritical use of "investor confidence" to support the recently promulgated Regulation FD).

¹¹¹ The SEC makes available many of the SEC filings (under the EDGAR disclosure system) at its website located at www.sec.gov (visited on Feb. 6, 2003).

exchanges on the functioning of the markets.¹¹² Through its enforcement work, the SEC also receives almost daily intelligence on the latest ingenious frauds against investors. When the SEC engages in rulemaking, it is often deluged with a large number of comment letters on its proposed rules.¹¹³ Finally, securities lawyers and law professors provide a steady stream of commentary (like this paper) on topics ranging from specific regulatory provisions to the overall nature of the securities regulatory system

Devising new regulations is costly, requiring analysis of complicated economic phenomena. Market participants are likely to know far more about these phenomena than regulators.¹¹⁴ It is no surprise, therefore, that regulators often develop tunnel vision, sticking to known regulatory schemes. The SEC's inability to assess all market risks and prioritize among them (due to the bounded capabilities of the agency staff and commissioners) may help explain the SEC's difficulties in grappling with problems in the financial markets.

Agenda setting provides one possible example of bounded rationality within the SEC. Instead of formulating a cohesive regulatory agenda, the SEC is generally reactive in its policymaking. Immediately prior to the Enron scandal, CEO certification of financial statements was nowhere to be found on the SEC list of policy initiatives. It was hardly news that CEOs sometimes fudge the numbers, occasionally on a grand scale.¹¹⁵ Nonetheless, CEO certification (and other aspects of the Sarbanes-Oxley Act) would not have been adopted without the external

¹¹² The New York Stock Exchange, for example, provides various data on the NYSE market at <http://www.nyse.com/marketinfo/marketinfo.html> (visited on Feb 6, 2003).

¹¹³ For example, the Concept Release proposing Regulation FD provoked 6,000 comment letters. See Final Rule: Selective Disclosure and Insider Trading, Rel. No. 33-7881 (August 10, 2000).

¹¹⁴ Cf. Henry T.C. Hu, *Misunderstood Derivatives: The Causes of Informational Failure and the Promise of Regulatory Incrementalism*, 102 Yale L.J. 1457, 1499 (1993) ("regulators may have trouble tapping into the informal information networks accessible to bankers. The personnel movement that causes information flow is unlikely to occur between the government and industry because, among other things, the salary differentials are awesome.").

¹¹⁵ For an example of fraud prior to Enron, one need only look to Sunbeam Inc. and former-CEO "Chainsaw Al" Dunlap who was removed as CEO in 1998 after allegations of financial fraud. See Kelly Greene,

pressure to react to a supposed crisis.¹¹⁶

Only rarely does the SEC proactively review its overall regulatory scheme. Even then, the agency often fails to follow up the review with substantive policy initiatives. For several years, the SEC engaged in an ambitious review of the transaction focus of the Securities Act's regulation of public offerings.¹¹⁷ A comprehensive study in the 1990s under the guidance of then-commissioner Steven Wallman recommended moving toward a company registration system of regulation.¹¹⁸ The rulemaking proposal that followed, however, was a series of half-measures that were greeted with hostility by the securities industry and corporate bar.¹¹⁹ We are still waiting for a comprehensive overhaul of the public offering process, the basic structure of which dates to the 1930s.

3. *Availability, Hindsight and Fundamental Attribution Biases*

Closely related to the bounded rationality are the heuristics regulators use to manage the deluge of information and problems stemming from the financial markets. Like investors, regulators suffer from availability, focusing too much attention on recent and immediately available information. Regulators may also be too quick to see a pattern in a series of events that are in fact random.¹²⁰ A handful of salient accounting scandals may be construed as a corporate

Dunlap Agrees To Settle Suit Over Sunbeam, Wall St. J., Jan. 15, 2002, at A3.

¹¹⁶ Historical evidence exists that waves of securities regulation typically follow financial market collapses. See Stuart Banner, What Causes New Securities Regulation? 300 Years of Evidence, 75 Wash. U. L. Q. 849, 850 (1997) (contending that over the past 300 years the major pieces of securities related regulation came about following a large and sustained price collapse in the stock market).

¹¹⁷ For a discussion of the transaction focus of the current securities regime see Stephen J. Choi, Company Registration: Toward a Status-Based Antifraud Regime, 64 U. Chi. L. Rev. 567, 604-15 (1997).

¹¹⁸ See Securities and Exchange Commission, Advisory Committee on the Capital Formation and Regulatory Processes Report (1996), available at <http://www.sec.gov/news/studies.shtml>.

¹¹⁹ See SEC Releases 33-7606 and 34-40,632 (Oct. 15, 1998).

¹²⁰ Cf. Thomas Gilovich, Robert Vallone, & Amos Tversky, The Hot Hand in Basketball: On the Misperception of Random Sequences, 17 Cognitive Psychol. 295 (1985).

governance crisis.¹²¹ SEC regulators may also suffer from hindsight, placing too much weight on the probability of past events that actually occurred (relative to those that did not). Finally, the fundamental attribution bias may lead SEC investigators to overestimate the influence of perceived disposition (e.g., fraud-prone) in explaining a person's behavior while overlooking the influence of the person's particular circumstances in any given situation.¹²² Once the SEC has determined someone is not trustworthy, the inclination will be to look for fraud, rather than an innocent mistake, regardless of the particular situation. And rarely will the SEC receive the feedback of having to test its theories in court. Most enforcement actions will be settled because defendants will not want to risk the potentially ruinous collateral estoppel effect of having a fraud judgment entered against them.¹²³

Each of these biases is exacerbated by the political imperative to respond to the latest headlines. Analyst independence only became a priority when the New York state attorney general revealed incriminating internal emails from Merrill Lynch.¹²⁴ Only after Enron and WorldCom moved accounting from the business page to the front page was auditor independence a compelling need. The SEC (and many others) readily assumed that the small

¹²¹ Lucian Bebchuk and Oren Bar-Gill, for example, motivate a theoretical paper on the incentives of managers and companies to engage in fraud with the observation that the number of accounting restatements has increased from 49 per year through most of the 1990s to 156 per year by 2000. See Lucian Ayre Bebchuk and Oren Bar-Gill, *Misreporting Corporate Performance* (located at http://papers.ssrn.com/sol3/papers.cfm?abstract_id=354141). As a percentage of the number of total filings made by the over 16,000 public reporting companies, however, the increase is miniscule.

¹²² See Langevoort, *supra* note 96, at 1504; Justin Kruger & Thomas Gilovich, *Naïve Cynicism in Everyday Theories of Responsibility Assessment: On Biased Assumptions of Bias*, 76 *J. Personality & Soc. Psych.* 743 (1999). See also Donald C. Langevoort, *Monitoring: The Behavior Economics of Inducing Agents' Compliance with Legal Rules*, at 15 (USC Center for Law, Economics & Organization, Research Paper No. C01-7) ("My suspicion is that concealed compliance wrongdoing by agents is only occasionally the product of inherently 'bad' moral dispositions. More often, a morally normal person gets caught in a situation that leads gradually to increasingly bad choices. Here, we revisit the fundamental attribution bias: the idea that observers underestimate in others the influence of situational factors, and overestimate 'character.'").

¹²³ See Rachlinski and Farina, *supra* note 20, at 559 ("Experience accompanied by feedback allows experts to identify situations in which they are using inappropriate heuristics or are trapped by misleading schema.").

¹²⁴ See Cheryl Winokur Munk, *Merrill Changes Stock-Research Rating Process*, *Wall St. J.*, June 10, 2002, at C16.

number of companies implicated in these scandals reflected a broader pattern, a statistically very dubious proposition (following the “law” of small numbers).¹²⁵ Notwithstanding this dubious empirical foundation, once this story took hold alternative explanations were pushed aside.¹²⁶ Just as curious as the (over)-reaction to the Enron-scandal was the lack of reform effort prior to the scandal. The Enron scandal provided no new information. The SEC and indeed most investors have long known that analyst ratings are skewed toward optimism and that auditors often provide non-auditing services to their clients.¹²⁷

Of course, one could argue that the SEC’s preoccupation with scandals stems from political pressure that also reflects an availability bias. The fact that Congress itself may act with an availability bias, however, is hardly cause for comfort. Combining an availability bias with the political imperative to “do something” creates a high likelihood of regulatory overreaction.¹²⁸ Such a bias within Congress, combined with biases at the SEC, further reduces the likelihood that the regulatory scheme will protect investors in a cost-effective fashion.

4. *Framing Effects*

How a particular question is framed may determine whether and how SEC officials respond. Framing effects may lead the SEC to fight vigorously to avoid a possible loss (in terms of investor welfare or the SEC’s own authority). On the other hand, the SEC may be less interested in advancing investor welfare beyond the present status quo.¹²⁹

¹²⁵ See supra note 26 (discussing the tendency of people to put too much weight on small samples).

¹²⁶ C.R. Mynatt, M.E. Doherty & W. Dragan, Information relevance, working memory, and the consideration of alternative, 46A Q.J. Experimental Psychol. 759 (1993).

¹²⁷ See Steven D. Jones, Heard in the Northwest: Region’s Rare ‘Sell’ Ratings Apply to Burgers, Machinery and a Thrift, Wall St. J. NW, at 2, 1999 WL-WSJ 24923975 (noting that “of 833 opinions in place on the 135 stocks last week [of companies located in the Northwest U.S.], there was a ‘strong sell’ on only one.”).

¹²⁸ For evidence that the urge to “do something” is highest immediately following a drop in the financial markets see Banner, supra note 116, at 850.

¹²⁹ See Steven M.H. Wallman, Competition, Innovation, and Regulation in the Securities Markets, 53 Bus.

The indifference of the SEC to various areas of securities regulation absent a large loss to investors suggests not only bounded rationality (and the related availability and hindsight biases) but also the importance of loss aversion. Many regulatory initiatives by the SEC have been launched shortly after either a large loss to investors or the threat of diminished authority for the SEC.¹³⁰ The SEC (and Congress) has been galvanized to action recently with the collapse of stock prices in the technology and telecom sectors and the allegations of accounting malfeasance that followed.¹³¹ The threatened loss of issuers and investors to overseas markets spurred the passage of Regulation S and Rule 144A in 1990.¹³² On the other hand, absent a threat to the SEC's authority or to investors, the SEC has typically remained complacent.

One could argue that this regulatory approach makes sense – put out fires and “don’t fix what ain’t broken.” The impact of regulations is uncertain; and it may be costly to experiment with new regulations without the threat of a perceived and immediate loss to investors. But this generalization cannot always be true. Sometimes rationalizing regulation, such as the proposal for company registration, may benefit both issuers and investors.¹³³ The continued bias toward reactive reform to the securities laws may represent at least partially a framing effects-related bias toward the status quo.¹³⁴

Law. 341, 346 (1998) (“Frequently, criticism is leveled at regulators’ concrete failure to protect someone who is hurt, rather than for precluding something new or experimental that might—although no one is sure—have led to a better world.”).

¹³⁰ See Banner, *supra* note 116, at 850.

¹³¹ See Charles Gasparino and Tom Hamburger, Congress Broadens Probe of Enron Fall To Wall Street Firms, *Wall St. J.*, Mar. 7, 2002, at C1 (reporting Congressional investigation into “analysts who continued to recommend Enron’s stock last fall as the company careened toward bankruptcy”).

¹³² See *Resale of Restricted Securities*, Securities Act Release No. 6862 (Apr. 23, 1990). See Josh Futterman, Note, Evasion and Flowback in the Regulation S Era: Strengthening U.S. Investor Protection While Promoting U.S. Corporate Offshore Offerings, 18 *Fordham Int’l L.J.* 806, 840-41 (1995); Samuel Wolff, Offshore Distributions Under the Securities Act of 1933: An Analysis of Regulation S, 23 *Law & Pol’y Int’l Bus.* 101, 112-16 (1991/92).

¹³³ See *supra* note 118 and accompanying text.

¹³⁴ See Rachlinski and Farina, *supra* note 20, at 560 (“If those affected by a regulatory program ‘endow’ the

5. *Overconfidence*

SEC regulators may be overconfident in their policy prescriptions, leading to errors and regulatory overreaching. Indeed, the specialized expertise claimed by the SEC may inflate the confidence with which regulators make decisions. Experts tend to be overly optimistic in assessing their own decisionmaking ability.¹³⁵ As Dale Griffin and Amos Tversky put it, experts are “often wrong but rarely in doubt.”¹³⁶

Examples of SEC overconfidence in its ability to regulate the securities markets come readily to mind. The SEC’s ambitious plan to integrate the stock exchanges and the over-the-counter market into a unified national market system is widely regarded as a failure, some twenty-five years after the proposal was first adopted.¹³⁷ Likewise, the SEC consistently has argued that U.S.-style securities regulation is superior to other regulatory regimes around the world, a position more awkward to sustain after Enron and WorldCom. The SEC, for instance, has insisted on the superiority of GAAP over international accounting standards, despite a dearth of empirical evidence to support the assertion.¹³⁸

Insider trading provides another conspicuous example of SEC overconfidence in regulation. Bolstered by the strong performance of the U.S.-capital markets in the 1980s and 1990s, the SEC aggressively exported U.S.-style insider trading prohibitions across the world. In large part due to the SEC’s efforts many countries adopted formal prohibitions against insider trading in the 1980s and 1990s.¹³⁹ The SEC hoped that insider trading prohibitions would

status quo, the status will likely remain in place.”).

¹³⁵ See Griffin and Tversky, *supra* note 28, at ____.

¹³⁶ *Id.* at 412.

¹³⁷ See Jonathan R. Macey & David D. Haddock, *Shirking at the SEC: The Failure of the National Market System*, 1985 U. Ill. L. Rev. 315.

¹³⁸ See Christian Leuz, *IAS versus US GAAP: A (New) Market Based Comparison*, (Working Paper, 2001).

¹³⁹ See Harvey L. Pitt & David B. Hardison, *Games Without Frontiers: Trends in the International Response to Insider Trading*, 55 L. & Contemp. Probs. 199, 204–06 (1992).

become accepted (and enforced) in other countries as they are in the United States. Despite the presence of formal insider trading bans, few countries have ever enforced their insider trading prohibitions.¹⁴⁰ At the end of 1998, 103 countries with stock exchanges prohibited insider trading, but only 38 countries had enforced their prohibitions even once.¹⁴¹ In our view, this campaign by the SEC reflects undue optimism in the power of the law to change behavior.

The SEC's regulatory turf battles with the CFTC may also stem from overconfidence. The United States allocates regulatory responsibility for "securities"¹⁴² to the SEC and responsibility for regulating "commodities" and "futures" to the Commodities and Futures Trading Commission (CFTC).¹⁴³ The SEC and CFTC have squabbled over their respective authority where the jurisdictional lines are unclear. These turf battles have occurred not only between the regulatory agencies, but also within Congress, with the Commerce Committee siding with the SEC and the Agricultural Committee siding with the CFTC. This competition between the agencies generally has produced substantial lobbying costs and distraction without any evidence of improvement for investors.¹⁴⁴ Although a straightforward public choice explanation rooted in regulators' desire to amass their own power explains this turf battle quite well, a pervasive overconfidence in the SEC's own regulatory abilities compared with the

¹⁴⁰ See Utpal Bhattacharya and Hazem Daouk, *The World Price of Insider Trading* (forthcoming Journal of Finance, 2002), available online at <http://papers.ssrn.com/sol3/papers.cfm?abstract_id=200914> (visited Aug 26, 2002) (prior to 1990, only 9 of 34 countries with prohibitions on insider trading have ever enforced their prohibitions).

¹⁴¹ See *id.*

¹⁴² See [15 U.S.C. § 77b\(1\) \(1994\)](#) (providing a definition of "security" for the Securities Act of 1933); see *id.* § 78c(a)(10) (providing a definition of "security" under the Securities Exchange Act of 1934).

¹⁴³ A futures contract is a standardized agreement under which a buyer agrees to purchase a specific quantity of a particular commodity at a specified date in the future at a fixed price.

¹⁴⁴ Indeed, SEC officials during the 1970s feared that the definition of the term commodity could even encompass ordinary securities. Former SEC Chairman Roderick Hills noted in 1975 that "it is relatively easy to suggest that the most basic examples of what is unambiguously a security, such as a share of GM or AT&T, are literally within the definition of a 'commodity'" Letter from SEC Chairman Roderick M. Hills to CFTC Chairman William T. Bagley [1975-1977 Transfer Binder] Comm. Fut. L. Rep. (CCH) P20,117 (Nov. 13, 1975). The SEC's battle with the CFTC culminated in the Shad-Johnson Accord of 1982. See Sanford A. Fine, Back to the (Single Stock) Future: The New Regulatory Framework Governing Single-Stock Futures Trading, 54 Admin. L.

CFTC's (and vice versa) may have exacerbated the ongoing rift.¹⁴⁵

6. *Confirmation Bias*

Regulators at the SEC may suffer from a confirmation bias.¹⁴⁶ Once regulations are on the books, regulators may feel the need to justify their worth instead of critically evaluating their effects. Evidence that does not discredit regulation unambiguously will be ignored.¹⁴⁷ And the confirmation bias will be more pronounced if the evidence is more complex and subject to conflicting inferences, a fair characterization of most regulatory problems in the securities

Rev. 513, 520-22 (2002)

¹⁴⁵ See Arlen, *supra* note 96, at 1776 (“This self-serving tendency may even grow stronger when groups predictably attempt to maximize the *difference* between themselves and another group.”).

¹⁴⁶ See J. Klayman, *Varieties of Confirmation Bias*, 32 *The Psychology of Learning and Motivation* 385 (1995).

If the behavioral economists are right about the pervasiveness of cognitive biases, perhaps we should not be surprised that the writing of even behavioral economists is infected by the biases. See Mitchell, *supra* note 6, at 8 n. 9 (“The behavioral law and economics scholars exhibit a pessimism bias in their work: they tend to ignore or discount research findings contrary to their view of legal decision-makers as afflicted by numerous judgmental biases and decision-making errors, while simultaneously interpreting ambiguous research findings as supportive of their pessimistic view of human rationality.”; internal quotation marks omitted). For example, Robert Prentice reports the existence of a confirmation bias, which cause “trained scientists [to] judge research reports that agree with their views to be of higher quality than those that disagree.” Robert Prentice, *The Case of The Irrational Auditor: A Behavioral Insight Into Securities Fraud Litigation*, 95 *Nw. U. L. Rev.* 133, 146 (2000) (citing Jonathan J. Koehler, *The Influence of Prior Beliefs on Scientific Judgments of Evidence Quality*, 56 *Org. Behav. & Human Decision Processes* 28 (1993)). He then goes on to downplay the significance of studies finding that auditors paid more attention to disconfirming than confirming evidence, praising a study that confirms his thesis of a confirmatory bias.

One might defer more to Prentice's interpretation of the empirical evidence if errors of statistical inference were not so prevalent in his work. For example, Prentice identifies a “rising tide of insider trading lawsuits involving accountant defendants.” Prentice, *supra*, at 189. The basis for this claim, however, is a string cite of 17 SEC enforcement actions over a period of *twenty-five years*. *Id.* at 189 n. 314. This is obviously too small a sample from which to draw any meaningful inferences. More fundamentally, one cannot infer anything about a change the behavior of accountants over time because of “the rising tide of insider trading lawsuits” generally over that time. The SEC will almost certainly find more insider trading by accountants if it devotes more resources to prosecuting insider trading, as it did during this period. Changes in the number of suits against accountants tells us nothing about the behavior of accountants if we do not control for the amount of insider trading enforcement resources generally. Similarly, Prentice claims that accounting fraud violations “tend not to be niggling,” based on a study of SEC enforcement actions. Prentice, 95 *Nw. U. L. Rev.* at 201 n. 390 (citing Ehsan H. Feroz et al., *The Financial and Market Effects of the SEC's Accounting and Auditing Enforcement Releases*, 29 *J. Acct. Res.* 107 (Supp. 1991)). SEC enforcement actions cannot tell us anything about the average magnitude of accounting violations because the size of the violation is a factor that the SEC relies upon in deciding which cases to prosecute.

¹⁴⁷ See Langevoort, *supra* note 14, at 137 (“Ambiguous information tends to be dismissed as unmanageable.”).

markets.¹⁴⁸ Self-justification is exacerbated when decisionmakers are held accountable in public settings.¹⁴⁹ Such self-justification can obstruct any change in the status quo.

The SEC in particular is prone to the self-justification bias because the SEC can always point to the depth and liquidity of the United States securities markets to justify its regulatory efforts. It is difficult to argue with success. But this self-congratulation ignores the status of the United States securities markets as the deepest and most liquid in the world *before* the SEC was created.¹⁵⁰ In fact, the liquidity of the U.S. markets gives SEC regulators large leeway to make mistakes and reduce overall investor value before investors would depart for other markets.¹⁵¹ SEC regulators that focus on the success of the United States securities markets therefore may become “locked in,” making future changes to regulations difficult.¹⁵²

¹⁴⁸ Jon D. Hanson & Douglas A. Kysar, Taking Behavioralism Seriously: The Problem of Market Manipulation, 74 N.Y.U. L. Rev. 630, 648 & n.60 (collecting studies).

¹⁴⁹ See Langevoort, *supra* note 14, at 142-143 (“once executives have committed to a course of action, their subsequent survey of information is strongly biased to bolster their choice—especially when their choice is public, and they can be held accountable for their decisions.”).

¹⁵⁰ United States markets were more liquid than their European counterparts before the securities laws were adopted in the US and the adoption of those laws had no apparent effect on liquidity. Prentice incorrectly claims that the regulation by the SEC “led directly to a large increase in investor participation in the stock markets.” 51 Duke LJ 1420 (citing Seligman at 561-62). In fact, the Exchange Act was a resounding failure at restoring investor confidence — the volume of trading remained below 1929 levels for another three decades. See ROBERT SOBEL, N.Y.S.E.: A HISTORY OF NEW YORK STOCK EXCHANGE 303 (1975) (average daily trading volume in 1955 was 1.7 million shares below 1929 averages). Further, the passage of the Exchange Act — with its strong anti-manipulation provisions — resulted in significant declines in NYSE and AMEX seat values. See G. William Schwert, *Public Regulation of National Securities Exchanges: A Test of the Coptree Hypothesis*, 8 BELL J. ECON. 128 (1977) Reduction in seat values is not the result one would have expected from government regulation intended to “restore investor confidence,” i.e., willingness to trade over the exchanges. Part of this decline in seat values may be attributable to the SEC’s open hostility at the time to the goal of liquidity. See RALPH F. DE BEDTS, THE NEW DEAL’S SEC 158 (1964) (discussing criticisms of liquidity by SEC Chairman William O. Douglas and in staff reports). In this regard, it is worth noting that institutional investors — who should have been a primary beneficiary of regulation — were critical of the Exchange Act. See C. John Kuhn, *The Securities Act and Its Effect Upon the Institutional Investor*, 4 L. & CONTEMP. PROBS. 80, 85 (1937) (“[I]t is the consensus of opinion among trained security buyers that regulations [under the Exchange Act] . . . have a restrictive effect upon markets outweighing the benefits gained.”).

¹⁵¹ Put another way, the liquidity of the U.S. securities markets is tied together with the U.S. securities regulatory regime. One of us has recommended undoing this tie to increase competitive pressure on securities regulators. See, e.g., Choi & Guzman, *supra* note 10.

¹⁵² A similar problem may afflict the SEC’s supporters. Prentice spends a substantial portion of his article documenting the existence of fraud in the securities markets, see Prentice, *supra* note 14, at 1415-1426, “even with seventy years of regulation on the books.” *Id.* at 1458 n. 286. The continuing existence of fraud is a startling revelation, but it is not at all clear how the prevalence of securities fraud under the SEC’s watch counsels in favor of retaining the SEC rather than considering a market alternative.

The SEC is also reluctant to concede weaknesses in its policy positions. For many years, the SEC prohibited forward-looking (“soft”) information disclosures in SEC filings.¹⁵³ This position persisted despite evidence that investors, when making an investment decision, often care most about the future prospects of a company and their implications for future cash flows to investors.¹⁵⁴ Although the SEC finally adopted a limited safe harbor for forward-look disclosures in 1979,¹⁵⁵ its reach is narrow and the agency continues to limit such disclosures, in some cases prohibiting forward-looking disclosures under its gun-jumping rules for companies planning a public offering.¹⁵⁶ When Congress enacted the Private Securities Litigation Reform Act of 1995 that contained a statutory forward-looking information safe harbor, the SEC pushed for a long list of transactions that would be excluded from the safe harbor.¹⁵⁷ And it has yet to exercise the exemptive authority provided by Congress in that law to expand the safe harbors.

The confirmation bias (and the SEC’s overconfidence in its prior policies) can be seen in the path dependence in the SEC’s regulations. As originally enacted in the 1933 and 1934 Acts, the securities laws provided separate disclosure standards for companies making public offerings and for companies whose securities simply trade on the secondary markets. For several decades thereafter, commentators recognized the need to unify disclosure standards.¹⁵⁸ Disclosures have the same relevance to investors whether they are purchasing in a public offering or on the secondary market. The SEC did not seriously consider revamping the scheme until the 1960s,

¹⁵³ See Edmund W. Kitch, *The Theory and Practice of Securities Disclosure*, 61 *Brook. L. Rev.* 763, 777-787 (1995). See also *Disclosure of Projections of Future Economic Performance*, Securities Act Release No. 5362 (1973).

¹⁵⁴ See, e.g., Homer Kripke, *Can the SEC Make Disclosure Policy Meaningful?*, *J. Portfolio Mgmt.*, Summer 1976, at 32, 35-37.

¹⁵⁵ See [17 C.F.R. § 240.3b-6 \(1997\)](#), originally promulgated in *Safe Harbor Rule for Projections*, Exchange Act Release No. 33-6084 (June 25, 1979), available in 1979 WL 16388; [17 C.F.R. § 230.175 \(1997\)](#).

¹⁵⁶ See Securities Act Release No. 5180 (Oct. 16, 1971) (warning that “care should be exercised so that, for example, predictions, projections, forecasts, estimates and opinions concerning value are not given with respect to such things, among others, as sales and earnings and value of the issuers’ securities.”).

¹⁵⁷ See, e.g., Noelle Matteson, *Comment, Private Securities Litigation Reform Act of 1995: Do Issuers Still*

ultimately adopting the present integrated disclosure system.¹⁵⁹ Even that, however, falls short of a full-fledged scheme of company disclosure.¹⁶⁰

The SEC also tends to believe that investors view the world the same way that it does. The false consensus effect is the “widespread and stubborn illusion . . . that others share one’s own attitudes and behaviors to a greater extent than they really do.”¹⁶¹ Closely related, the SEC may engage in self-serving inferences, choosing to view investors in the light most supportive of the need and importance of the SEC.¹⁶² The SEC’s insistence that investor attitudes mirror views among SEC commissioners and staff may lead the agency toward ill-advised regulations. The SEC often uncritically states that it seeks to protect investors – and in particular, that absent the SEC’s efforts investor confidence in the market will deteriorate. Rarely, however, does the SEC verify if its assumptions are correct. The SEC instead simply asserts that investor confidence demands its latest regulatory intervention. The recently promulgated Regulation FD, prohibiting selective disclosures from companies, provides an example. The SEC argued (with no empirical basis) that the practice of selective disclosure to analysts was undermining investor confidence.¹⁶³ A new regulatory burden was imposed on issuers with little or no evidence that it would produce countervailing benefits for investors.¹⁶⁴

Get Soaked in the Safe Harbor?, 27 Golden Gate U. L. Rev. 527, 548 n.139 (1997).

¹⁵⁸ See Milton H. Cohen, “Truth in Securities” Revisited, 79 Harv. L. Rev. 1340 (1966).

¹⁵⁹ See Securities Act Release No. 6383 (1982).

¹⁶⁰ See *supra* note 118 and accompanying text.

¹⁶¹ See Langevoort, *supra* note 82, at 859 (citing Gary Marks & Norman Miller, Ten Years of Research on the False-Consensus Effect: An Empirical and Theoretical Review, 102 Psychol. Bull. 72 (1987)).

¹⁶² Don Langevoort describes self-serving inferences as follows: “Self-serving inferences arise when there is a reasonably high level of ambiguity surrounding a situation. With that kind of cognitive freedom, the mind tends to form stronger-than-justifiable inferences in the direction of a person’s self-interest. More simply, people see as correct what is more properly described as convenient. Having rationalized their inferences, people feel little guilt in acting upon them.” Donald Langevoort, When Lawyers and Law Firms Invest in their Corporate Clients’ Stock, 80 Wash. U. L.Q. 569, 574 (2002).

¹⁶³ See Final Rule: Selective Disclosure and Insider Trading, Rel. No. 33-7881 (August 10, 2000) (“We believe that the practice of selective disclosure leads to a loss of investor confidence in the integrity of our capital markets.”)

¹⁶⁴ On a related note, Donald Langevoort has argued that the case for Regulation FD is at best uncertain

7. *Groupthink*

Cognitive biases within the SEC are magnified by pervasive organizational “groupthink.” Groupthink occurs when individuals come to identify with the organization and accept its mission uncritically due to their perceived membership in the group.¹⁶⁵ Once a commitment has been made, group members will downplay feedback that is inconsistent with that position in order to minimize tensions within the group.¹⁶⁶ Although an individual may assess a particular decision critically, members of a group defer to the consensus. Groupthink will also tend to reduce the range of hypotheses that an organization considers when faced with a problem.¹⁶⁷

The SEC is known for its strong organizational culture. Often praised as hard-working and dedicated, the mission of “investor protection” is taken to heart by virtually all SEC staffers.¹⁶⁸ This tendency is no doubt reinforced by self-selection among those seeking SEC employment.¹⁶⁹ The type of people who choose to become regulators and enforcement officials may have a heightened sense of justice and fairness.¹⁷⁰ Such traits may lead regulators to work

from the viewpoint of behavioral economics. See Langevoort, *supra* note 15, at 165-75.

¹⁶⁵ See Irving Janis, *Victims of Groupthink* (1972). See also James D. Cox & Harry L. Munsinger, *Bias in the Boardroom: Psychological Foundations and Legal Implications of Corporate Cohesion*, 48 L. & Contemp. Prob. 83, 99-108 (applying analysis to decisions by corporate boards); Robert J. Haft, *Business Decisions by the New Board: Behavioral Science and Corporate Law*, 80 Mich. L. Rev. 1, 37-49 (1981) (same).

¹⁶⁶ See Langevoort, *supra* note 82, at 874.

¹⁶⁷ See Chip Heath, Richard P. Larrick & Joshua Klayman, *Cognitive Repairs: How Organizational Practices Can Compensate for Individual Shortcomings*, 20 Res. in Org. Behavior 1 (1998) (“Often, organizations ensure that individuals weigh information effectively by forcing them to interact with others who might weight the information differently.”).

¹⁶⁸ In a speech while Chairman of the SEC, Arthur Levitt summarized the SEC’s mission:

Investor protection is our legal mandate.

Investor protection is our moral responsibility.

Investor protection is my top personal priority.

Arthur Levitt, *A Question of Integrity: Promoting Investor Confidence By Fighting Insider Trading*, 12(4) Insights 17, 18 (1998). Pritchard, a former senior counsel at the SEC, can attest from personal experience that this attitude is widely shared among the staff.

¹⁶⁹ See Rachlinski and Farina, *supra* note 20, 579-580 (“Those who seek work at an agency charged with responsibility for the environment probably have strong views about the appropriate goals and means of environmental regulations. Consequently, agencies become myopically focused on their missions.”).

¹⁷⁰ See *supra* Part IV.A.6 (discussing the groupthink bias).

hard for relatively low pay. Such a culture helps maintain morale and focuses SEC staffers on the task of regulating the capital markets.

Despite these benefits, the strong investor protection culture within the SEC may also lead to groupthink. Homogeneous groups like the self-selected SEC staffers are particularly susceptible to the confirmation bias¹⁷¹ and are perhaps more likely to engage in self-serving inferences (to the extent all the staffers have a homogeneous interest).¹⁷² Once the SEC has committed to a policy initiative through a rulemaking proposal thereby tentatively committing the “group,” feedback on the proposal may get less weight than it would have if the information had been solicited before the SEC fixated upon a specific proposal.

Groupthink may also manifest itself in the SEC’s single-minded focus on investor protection. When a decision can be placed on a normative scale, such as more or less investor protection, group decision dynamics will push the group toward a polar end of the scale.¹⁷³ At the SEC, the systematic tendency will be to settle on outcomes that promise more investor protection. Many investors may be able to protect themselves, but the SEC usually focuses on the stereotypical “widows and orphans” in crafting protections.

Perhaps due to groupthink, overconfidence, the confirmation bias, self-serving inferences, loss aversion, or some combination of these biases, the SEC assumes that it knows what investors consider “fair” in the capital markets.¹⁷⁴ To take one example, the SEC has for

¹⁷¹ See Stefan Schulz-Hardt et al., Biased Information Search in Group Decision Making, 78 J. Personality & Soc. Psychol. 655 (2000).

¹⁷² See supra note 162 (describing self-serving inferences).

¹⁷³ See Mark Seidenfeld, Cognitive Loafing, Social Conformity, and Judicial Review of Agency Rulemaking, 87 Cornell L. Rev. 486, 535 (2002) (“When the outcome of a decision can be placed on a normative scale, such as being risky rather than safe, liberal rather conservative, or certain rather than uncertain, then the dynamics of group decisionmaking can actually increase the tendency of the group to choose an outcome that is on one end of the scale rather than in the middle.”). See also Cass R. Sunstein, Deliberative Trouble? Why Groups Go to Extremes, 110 Yale L.J. 71 (2000) (canvassing evidence on group polarization).

¹⁷⁴ See Jeffrey M. Laderman et al., The Epidemic of Insider Trading, Bus. Wk., Apr. 29, 1995, at 78 (quoting former SEC Chairman Arthur Levitt as stating “If the investor thinks he’s not getting a fair shake, he’s not

years contended that insider trading is “unfair” and that, if not prohibited, the practice will cause investors to lose confidence in the markets.¹⁷⁵ But why is it unfair if investors discount for the risk of insider trading and thereby pay a lower price for their securities? Perhaps an independent and unchangeable norm exists that insider trading is unfair. Or perhaps investors lack the ability to fully discount for the risk of insider trading and failing to prohibit such activities will dry up market liquidity. This possibility seems unlikely, however, given the commonly acknowledged prevalence of insider trading before the SEC became serious about enforcement in the 1980s. Market liquidity co-existed peacefully with notorious insider trading, as it continues to do in many countries.¹⁷⁶ Our task here is not to defend insider trading.¹⁷⁷ We only point out that the SEC has accepted uncritically the premise of unfairness without investigation and ignoring contrary evidence that insider trading does not impair investor confidence.

B. Corrective Mechanisms

Corrective measures may help to overcome the behavioral biases of regulators. If you explain framing effects to a person and then immediately afterward ask how they value avoiding the loss of a coffee mug compared with gaining a coffee mug, the person is less prone to framing.¹⁷⁸ This example shows that structural mechanisms can reduce behavioral biases. For

going to invest, and that is going to hurt capital investment in the long run.”).

¹⁷⁵ See, e.g., Brief of Petitioner, *United States v. O'Hagan*. Full disclosure: Pritchard, then a lawyer at the SEC, helped write this brief. For a criticism of the confidence in the market argument see Stephen M. Bainbridge, Incorporating State Law Fiduciary Law Duties into the Federal Insider Trading Prohibition, 52 Wash. & Lee L. Rev. 1189, 1241 – 45 (1995).

¹⁷⁶ See Bhattacharya and Daouk, *supra* note 140 (providing evidence that enforcement of insider trading laws is relatively infrequent outside the United States).

¹⁷⁷ For such a defense, see Henry G. Manne, *Insider Trading and the Stock Market* (1966). For criticisms, see, e.g. Saul Levmore, Securities and Secrets: Insider Trading and the Law of Contracts, 68 Va. L. Rev. 117, 149 (1982) (arguing that insiders may structure a corporation's transactions to profit from insider trading); Kenneth Scott, Insider Trading: Rule 10b-5, Disclosure, and Corporate Privacy, 9 J. Legal Stud. 801, 810 – 11 (1980); Robert J. Haft, The Effect of Insider Trading Rules on the Internal Efficiency of the Large Corporation, 80 Mich. L. Rev. 1051, 1051 – 64 (1982).

¹⁷⁸ See Arlen et al., *supra* note.

our purposes, the relevant questions are which mechanisms would work for the SEC, and are they cost-justified. We review below possible antidotes to cognitive biases within the SEC.

1. Internal Organization

Organizations can structure themselves to reduce the impact of behavioral biases. Absent intervention, “experts may myopically focus on issues within their area of expertise and thereby fail to recognize that a decision would benefit from accessing other bodies of knowledge or ways of thinking.”¹⁷⁹ Organizations can call on multiple decisionmakers with different types of expertise to reduce the risk that heuristics will be applied without consideration of context.¹⁸⁰ The staff of the SEC is organized into multiple divisions, and most regulatory proposals will be reviewed by more than one division. At a minimum, the general counsel’s office will comment on any proposal before the commissioners approve it. This structure requires the division proposing a regulatory initiative to defend its assumptions and may allow for creative alternatives.¹⁸¹

The process by which commissioners approve staff proposals suggests another means by which organizations can reduce cognitive bias: hierarchical review. Forcing decisionmakers to justify their decision may reduce some cognitive problems, as with judicial and political oversight. In the SEC, this takes the form of the commissioners reviewing the proposals that typically originate with the agency staff. In this way, the expert commissioners scrutinize the work of the staff experts. And the mandate of political balance among the commissioners

¹⁷⁹ Rachlinski and Farina, *supra* note 20, at 560

¹⁸⁰ See Heath et al., *supra* note.

¹⁸¹ See Rachlinski and Farina, *supra* note 20, at 562 (arguing that placing experts into separate groups helps avoid “escalating commitment” to a proposal).

provides some assurance that proposals will be subjected to diverse viewpoints.¹⁸² Of course, the efficacy of this review will be undermined if political considerations or cronyism, rather than merit and intellectual diversity, drive the selection of commissioners.

Despite the promise of organization structure, the effects of behavioral biases are unlikely to be eliminated completely. Although organizational structure may reduce some biases, they may introduce countervailing biases. Assigning different tasks to different divisions may help increase diversity of perspectives, but contribution to a group product may reduce individuals' incentives to engage fully in making the decision.¹⁸³ Individual effort will be further reduced if the decisionmaker only has authority to make recommendations, rather than making the ultimate decision.¹⁸⁴ So, although review by SEC commissioners may bring accountability to the SEC staff, it comes at the cost of reducing the engagement of the staff in the initial decision. Moreover, the thoroughness of review by the commissioners will be limited by the fact that each commissioner has only one vote and that vote will rarely be decisive. The power of any individual commissioner will be further diluted by the practice of the SEC staff of not vetting proposals with commissioners until the time for final approval. At that point, scrutiny from the commissioners may have little impact.¹⁸⁵

The lack of a unified theory of behavioral biases makes it unclear what effect organizational structure will have on the magnitude of the biases.¹⁸⁶ Does introducing experts

¹⁸² The Exchange Act provides for five commissioners at the head of the SEC. No more than three of the five commissioners may be from the same political party. See 15 U.S.C. § 78(d).

¹⁸³ See Seidenfeld, *supra* note 173, at 510-511.

¹⁸⁴ See *id.* at 511.

¹⁸⁵ In addition, to the extent the commissioners and the SEC's staff share a common preference (e.g., the expansion of the SEC's authority), the self-serving inferences of commissioners will become magnified when commissioners are called upon to endorse equally self-serving judgments made by the staff. K. A. Diekmann, S. M. Samuels, L. Ross, and M. H. Bazerman, Self-Interest and Fairness in Problems of Resource Allocation: Allocators Versus Recipients, *J. Personality & Soc. Psych.* (May 1997).

¹⁸⁶ See *supra* notes 31-36 and accompanying text (discussing the lack of any unified theory explaining behavioral biases).

from different fields appreciably reduce the tendencies of specific experts to act with overconfidence and to misapply heuristics learned in one field more generally to other fields? We simply do not know the answer to these questions.

2. *Judicial Review*

Behavioral decision theory commentators have argued that judicial review can ameliorate the behavioral biases of regulators.¹⁸⁷ This makes intuitive sense; not surprisingly, as Jeffrey Rachlinski writes, “cognitive biases are easier to spot in others than in oneself.”¹⁸⁸ Mark Seidenfeld contends that review - even by a non-expert judiciary - may reduce the biases of expert regulators.¹⁸⁹ Regulators who anticipate review by an unknown audience will tend to take greater care in arriving at their decision. In creating a written record, regulators will look at more diverse information sets if a written record is required.¹⁹⁰ This may mitigate the availability bias. Being forced to consider alternatives and counterarguments is a useful antidote to overconfidence.¹⁹¹ Biases related to the conviction of regulators in their positions (e.g., overconfidence and overoptimism biases) can be reduced if regulators are forced to list the weaknesses in their position.¹⁹² The potential for review will also discourage regulators from relying on heuristics because they must justify their decisions in writing to non-experts.

Judicial review, however, will not eliminate regulatory biases and it may introduce others. Regulators subject to review may take advantage of their expertise and information

¹⁸⁷ See Seidenfeld, *supra* note 173.

¹⁸⁸ Jeffrey J. Rachlinski, *Heuristics and Biases in the Courts: Ignorance or Adaptation?*, 79 Or. L. Rev. 61, 65-66 (2000).

¹⁸⁹ See Seidenfeld, *supra* note 173, at 508-526.

¹⁹⁰ See *id.* at 516 (“Individuals who are accountable to an audience with unknown views are significantly more self-critical while making their decisions.”).

¹⁹¹ See Rachlinski and Farina, *supra* note 20, at 588.

¹⁹² See Linda Babcock, George Lowenstein & Samuel Issacharoff, *Creating Convergence: Debiasing Biased Litigants*, 22 J. L. & Soc. Inquiry 913, 920 (1997).

advantages over the court and downplay their positions' weaknesses. The subject matter under review may be sufficiently complex that judges simply cannot determine the exact nature of the reasoning. If a lack of judicial expertise is a serious problem, judicial oversight may have little effect on regulators' decisions, thus doing little to overcome cognitive biases among regulators. Judicial review is also likely to exacerbate regulators' confirmation bias (resulting in a "circle the wagons" effect as regulators defend their past regulatory positions).¹⁹³ Judges, moreover, may face their own behavioral biases.¹⁹⁴

3. *Political Oversight*

The SEC is not the only regulator of the securities markets. Congress and the President have considerable influence over the capital markets both directly, through legislation and the nomination processes, and indirectly, through budgetary and other pressure on the SEC. While the SEC has sought to expand its authority, Congress worked, on occasion, to reduce regulatory burdens of regulation. For example, the 1995 Private Securities Litigation Reform Act reduced the cost to issuers of defending securities fraud class actions.¹⁹⁵

Political oversight, however, is no panacea for behavioral biases among regulators. Politicians themselves may face their own behavioral biases, and there is no reason to think that the politicians' biases are any less than those facing regulators.¹⁹⁶ Before the Enron scandal broke, Capitol Hill was silent on the roles that auditors and analysts play as gatekeepers in the

¹⁹³ See Seidenfeld, *supra* note 173, at 524

¹⁹⁴ For a discussion of judicial biases see *infra* Part IV.A.2.

¹⁹⁵ The Private Securities Litigation Reform Act is codified at 15 U.S.C.A. § 78(u)-4(b)(1) & (2) (West 1999).

¹⁹⁶ See Rachlinski and Farina, *supra* note 20, at 572 ("Members [of Congress] seem vulnerable to the cognitive illusions that typically go unrecognized and unremediated by lay decisionmakers: being more attuned to potential harm than to foregone benefits (framing effects); overestimating the prevalence of events that are easy to remember (the availability heuristic) and disregarding the prevalence of an event altogether in evaluating its importance (the representativeness heuristic).").

securities markets. After the scandal, politicians were baying for regulatory reform. This shift on the part of lawmakers could represent a rational response to new information, but we doubt it. More likely, it is a symptom of the availability bias at work.¹⁹⁷ Indeed, opportunistic politicians may take advantage of the availability biases of the electorate, playing up recent instances of fraud to gain electoral support.

Scandal driven reform followed by political neglect has been a recurring pattern in the securities markets. Congress passed the Glass-Steagall Act in the Great Depression in response to scandals in the banking industry. While scandals may be needed to focus dispersed lawmakers' collective will, they often result in overreaction,¹⁹⁸ particularly if political entrepreneurs succeed in framing the issue in a way that resonates with the electorate.¹⁹⁹ "Fraud led to the market crash that wiped out your savings!" is easier to sell to voters who weigh losses more heavily than gains than "Excessive regulations will reduce your investment gains by ½ of 1% per year!" Once in place, legislation often takes on a life of its own. It took Congress over six decades to get around to repealing the Glass-Steagall Act.²⁰⁰ Legislators may accept the wisdom of prior legislation uncritically, operating under a confirmation bias. And industry participants may be quiescent if regulation serves as a barrier to entry.²⁰¹ Without any recent

¹⁹⁷ See Roger G. Noll & James E. Krier, Some Implications of Cognitive Psychology for Risk Regulation, 29 J. Leg. Stud. 747, 762 (1990) ("immediately following a widely publicized disaster, citizens will place unusually great demands on their government to take action against recurrence, but as attention subsides, so too will the demand for action.").

¹⁹⁸ See Banner, *supra* note 128, at 850 (contending that over the past 300 years the major pieces of securities related regulation came about following a large and sustained price collapse in the stock market).

¹⁹⁹ See Roger G. Noll & James E. Krier, Some Implications of Cognitive Psychology for Risk Regulation, 29 J. Leg. Stud. 747, 769 (1990) ("adeptness at characterizing issues can go a long way in determining the policy preferences expressed by the electorate.").

²⁰⁰ Gramm-Leach-Bliley Act, Pub. Law 106-102, 1999 U.S.C.A.N. (113 Stat.) 1338 (1999).

²⁰¹ Roger Noll and Jim Krier argue that this will often be a conscious political strategy:

"[T]he best political strategy might be to enact rather rigorous and explicitly specified policy targets but set up a process of implementation that provides distributive benefits to participants in the process. An example would be a cumbersome process for setting industry standards, combined with differentially

information of equal salience (non-scandals tend not to generate newspaper headlines) no impetus will exist to remove the protective legislation.²⁰²

Congressional review will also lead the SEC to skew deliberation to make rules easier to justify to committee chairs and their staff. If rules are proposed to satisfy political demands, legislative oversight will induce greater justification for those rules, but it is unlikely to generate more thoughtful consideration on the part of regulators.²⁰³ Because the SEC staff will be aware of the preferences of important members of congressional committees, the staff will tailor regulatory rules to conform to those preferences.²⁰⁴ To the extent Congressional committees suffer from their own biases or are motivated out of public choice concerns, the SEC's incentive to tailor rules toward the interests of such committees may not improve investor welfare.

C. Other Explanations for Regulatory Failure at the SEC

Other theories may explain the SEC's policy decisions, such as public choice

more rigorous standards for new sources of risk than for old ones—so that the costs to industry of the tough standards will be offset (perhaps more than offset) by barriers to competitive entry.”

Roger G. Noll & James E. Krier, Some Implications of Cognitive Psychology for Risk Regulation, 29 J. Leg. Stud. 747, 774 (1990). The '33 Act provides an obvious example of this strategy in the context of securities regulation. See Paul Mahoney, The Political Economy of the Securities Act of 1933, J. Leg. Stud.

²⁰² Congress's inertia may be an inevitable by-product of institutions designed to ameliorate the instability inherent in majority voting schemes. See Roger G. Noll & James E. Krier, Some Implications of Cognitive Psychology for Risk Regulation, 29 J. Leg. Stud. 747, 761 (1990) (arguing that “political institutions designed to combat the inherent instability of majority-rule democracy also attenuate the responsiveness of policy to changes in citizen preferences. Hence, if citizens exhibit intertemporal inconsistencies in preferences regarding risk regulation, modifications in policy are unlikely fully to reflect these changes in preferences.”).

²⁰³ See Seidenfeld, *supra* note 173, at 515. The utility of political review will be further undermined by the fact that it is likely to be based on the outcome rather than the process by which the agency arrived at the rule, leading to an increase in biases in agency decisionmaking. See *id.* at 517 (“For accountability to be beneficial, a decisionmaker must perceive that the evaluation of her decision will be based on the process that she used to reach the decision, rather than on the outcome of the decision.”). Seidenfeld notes that studies exist indicating that those who are judged based on the outcome of a decision rather than their decisionmaking process systematically are biased by sunk costs. See *id.*

²⁰⁴ See Mark Seidenfeld, The Psychology of Accountability and Political Review of Agency Rules, 51 Duke L.J. 1059, 1078 (2001) (“Given the threat of cuts in appropriations or statutory limitations on agency authority, agencies have a strong incentive to conform their actions to be at least acceptable to the committee chair

explanations that rely on the rational actor model.²⁰⁵ SEC regulators may push new regulations not because they are caught in heuristic traps, but because more regulation equates with an increased role for the SEC. Likewise, SEC regulators may fight the CFTC for jurisdiction and otherwise expand the SEC's domain beyond the United States not because of overconfidence, but because SEC regulators want to maximize their authority. But, even if behavioral biases do not affect regulators, the fact that the SEC (or Congress) may engage in wrongheaded decisions for reasons other than cognitive bias is cold comfort for those who would rely on regulators to cure behavioral biases among investors.

Public choice and behavioral theories frequently complement each other. Self-interested regulators may point to behavioral biases among investors to expand regulatory protections for investors and the corresponding agency resources to provide such protections.²⁰⁶ The fact that regulators may be motivated to expand their own prestige and future compensation does not make them any less susceptible to behavioral biases. Indeed, cognitive illusions may magnify the harm caused by the more self-interested regulators. Regulators do not fit neatly into either the opportunistic or completely selfless boxes a range of motivations exists. Within this range, cognitive biases may encourage regulators to equate self-interest and the public interest. An overoptimistic regulator, for example, may be able to delude himself that a regulatory change, which coincidentally increases the prestige and power of the regulator's position, also benefits

and a majority of committee members.”).

²⁰⁵ See generally Jonathan R. Macey, Administrative Agency Obsolescence and Interest Group Formation: A Case Study of the SEC at Sixty, 15 Cardozo L. Rev. 909 (1994) (providing a public choice explanation for the SEC's continued existence despite its obsolescence).

²⁰⁶ Indeed, regulators may attempt to take advantage of the public's behavioral biases to push forward self-interested regulatory programs. See Jonathan R. Macey, Cynicism and Trust in Politics and Constitutional Theory, 87 Cornell L. Rev. 280, 299 (2002) (“[P]eople will tend to either underestimate a relatively high-probability risk, or to overestimate a relatively low-probability risk. This cognitive bias permits opportunistic politicians and interest groups to exploit rationally ignorant citizens by convincing them that costly, draconian legislation is necessary to address low-probability risks.”).

the market.²⁰⁷ Former SEC Chairman Harvey Pitt's recent effort to elevate his position to cabinet level in the wake of a series of accounting scandals affords a salient example of this tendency.²⁰⁸ Reducing the cognitive dissonance between benefiting oneself and benefiting investors may help SEC regulators sleep easier, but it does not help investors. Similarly, an SEC regulator may convince himself that a particular regulation that happens to benefit a powerful securities industry group (which may be a source of future employment for the regulator) also is good for the market. Self-persuasion will be that much easier if the industry group can threaten credibly to create trouble with the SEC's overseers on Capitol Hill. Although we cannot identify the precise motivation behind the actions of the SEC and its staff, it does not follow from the existence of behavioral biases that more regulation is the solution.

IV. Assessing Regulation to Correct Biases

The behavioralist critique of investor decisionmaking unfortunately yields few answers. Investors may act irrationally in their decisionmaking. Investors also may trade excessively due to a speculative preference. It is difficult to construct a response to cognitive biases among investors (and other market participants) absent a theory of why we have behavioral biases.²⁰⁹ A case has been made that behavioral phenomena may affect the capital markets. But how prevalent are the phenomena? Can people correct for their own biases? And if so how? If behavioral biases are simply hard wired into our brains then no amount of effort may be able to change them. Disclosure alone, the principal regulatory response, fails to address the needs of

²⁰⁷ See supra note 162 and accompanying text (discussing the self-serving inference affecting the SEC).

²⁰⁸ See Stephen Labaton, S.E.C. Chief Draws Ridicule In Quest for Higher Status, NY Times C9 (July 25, 2002).

²⁰⁹ See Mitchell, supra note 6, at 98 ("As currently conceptualized, legal decision theory is nothing more than a mess of overgeneralizations about how 'people' exhibit this or that bias or anomaly under largely unspecified conditions."); Donald C. Langevoort, Monitoring: The Behavior Economics of Inducing Agents' Compliance with Legal Rules, at 3 (USC Center for Law, Economics & Organization, Research Paper No. C01-7) ("I cannot quantify

investors operating under a dense cloud of behavioral illusions. Moreover, regulators themselves face cognitive problems of their own. Given these uncertainties, the biases of regulators, and the costs of regulation, the cure may be worse than the disease.

One response to this uncertainty would be to ignore investors' behavioral biases altogether and structure regulation on the basis of the rational actors model. We think that is an unlikely outcome, so we instead provide a framework for assessing regulatory responses to behavioral biases. Perhaps more important than measuring the magnitude of biases among investors and regulators is deciding *who* will weigh these biases against one another (and under what burden) in determining: (a) whether a regulatory response is warranted and (b) how to structure regulatory decisionmaking to reduce biases within the regulatory agency (using, for example, judicial review or internal organizational controls). Ultimately the SEC (or some other regulatory decisionmaker) must determine whether to promulgate new regulations aimed at remedying investors' cognitive biases.

Significantly, the decision on the part of the regulator whether to intervene to remedy market-based behavioral biases is subject to behavioral biases. Regulators focusing on market-based biases may ignore their own biases, leading to potentially ill-suited responses to behavioral biases. Recall that experts may suffer from larger overoptimism and heuristic biases when applying their expertise in areas outside their primary area.²¹⁰ Few SEC commissioners or staffers are likely to be expert in investor psychology. Such regulators may systematically opt for a regulatory solution to the presence of market behavioral biases. Moreover, while market biases continually face the pressure of competition, behavioral biases among regulators may go unchecked if regulators enjoy monopoly authority. Newly installed regulations often take on a

the net impact of these kinds of errors, which limits the precise policy lessons we can draw from the analysis.”).

²¹⁰ See Griffin and Tversky, *supra* note 28.

life of their own, leading to more intrusive regulations over time; regulations to correct cognitive errors are unlikely to be an exception.

Should regulators take an active stand against behavioral biases, moreover, investors may become overly optimistic that they are fully protected against their own foibles and therefore reduce their own vigilance against behavioral biases. Any such intervention to correct for behavioral biases will have gaps, however, and over-optimistic (or perhaps overly trusting) investors may suffer even more harm.²¹¹

Before starting down the road toward a regulatory response, therefore, we propose a framework for assessing regulation to correct market-based cognitive biases. Our framework varies along two dimensions: (1) the type of regulator, and (2) the form of behavioral intervention contemplated. On the first dimension, we argue that regulators facing competition should enjoy a weaker presumption against intervention than monopolistic regulators. On the second dimension, some forms of regulation interfere more directly with the autonomy of market participants and therefore should face a correspondingly higher presumption against intervention.

We do not attempt here to specify the details of how our framework would be implemented in practice. In certain cases, implementing the framework may involve court review of agency decisions using the appropriate presumption against behavioral bias-targeted intervention. Some policymakers, however, such as Congress, are not realistically subject to any review. In those cases, our presumptions are simply cautions to be considered before attempting to address behavioral biases. We also do not address how behavioral biases at the SEC should affect review of the SEC's efforts to deal with more traditional problems in the securities markets, such as fraud motivated by the greed. While biases may afflict all forms of SEC

²¹¹ Cf. W. Kip Viscusi, *Fatal Tradeoffs: Public and Private Responsibilities for Risk* 234-242 (1992) (describing the lulling effect).

decisionmaking, regulator biases have their greatest impact in particular when regulators are focused on how to deal with uncertain and amorphous issues—such as interventions to correct market-based biases. In an area of heightened uncertainty, the SEC’s tendency to act out of a confirmation bias, with overconfidence, and following self-serving inferences may become accentuated. We define three levels of presumptions:

Presumption	Standard
Strong Presumption	Highest likelihood of net benefits of regulation and no less restrictive alternative
Intermediate Presumption	Substantial likelihood of net benefits of regulation and no less restrictive alternative
Weak Presumption	A likelihood of net benefits of regulation

While the precise level of each presumption is somewhat arbitrary, the notion that different forms of regulations to correct market-based biases require varying levels of justification is not. We turn now to a more detailed description of the two dimensions along which we set our presumptions against regulation targeting behavioral biases.

A. Regulatory Decisionmakers

In this section we discuss how the framework for assessing regulatory intervention should vary for (1) monopolistic and centralized regulators such as the SEC; (2) the federal courts; (3) regulators (including market-based regulators such as securities exchanges) facing competition from other sources of regulatory protections for investors.

1. *Monopolistic Regulators*

We posit that regulatory decisionmakers with monopoly authority—such as the SEC with respect to most domestic securities regulation—should have to overcome a strong presumption against intervention to correct cognitive biases. The SEC should be required to demonstrate a high likelihood of net benefits from the regulation as well as no less restrictive alternative.

Why impose such a strong presumption against intervention by the SEC and similar monopolistic regulators? Simply put, market forces are unlikely to correct the biases affecting monopolistic regulators. Without competitive pressure, biases may flourish. Just as a lack of competition gives regulators the ability to slack or direct rents from regulation to themselves, monopolistic regulators may also satisfice, employ flawed heuristics, and suffer from other cognitive biases with minimal feedback and no direct penalties. To be sure, extremely poor regulation may eventually produce a market backlash if investors exit the capital markets. But there remains considerable leeway for behavioral flaws to go uncorrected within the SEC.

The SEC is not an unconstrained monopolist. Congress controls the SEC through its power over the agency's purse strings. In addition, Congress may legislate changes in the SEC's mission and any other aspect of the current securities regulatory regime through legislation. Courts also review SEC decisions. As we have discussed above, however, neither Congressional oversight nor court review can correct all (or even most) biases among regulators. More significantly, the current interplay between Congress, the courts, and the SEC is not subject to significant competitive pressure. If investors do not have a choice of regulatory regime, the checks and balances represented by judicial and congressional oversight of the SEC may not be the most cost-effective means of curtailing the influence of cognitive bias on regulation. Congress, the SEC, and perhaps even judges may bend to political pressure (especially from

concentrated interest groups). This interplay of political forces is not necessarily focused on investor welfare, but instead may reflect both the interest and biases of specific groups. Judicial review and congressional oversight do not dissuade us from recommending a strong presumption against intervention by the SEC to correct market-based behavioral biases.

The combination of behavioral biases and public choice motivations of SEC regulators may also generate a one-way ratchet effect: regulations are easy to promulgate but difficult to remove. Overconfidence may fuel self-interest to push the SEC to implement new regulations. Once new regulations are in place, the confirmation bias may lead SEC regulators to then further “buy in” to the usefulness of such regulations. Why question the status quo which has proven so effective in the past? Feedback tending to show that regulations are imposing costs in excess of benefits will be downplayed because of the SEC’s confidence in its regulatory abilities.

Various interest groups may conform their businesses to the regulatory status quo; some groups (such as attorneys, accountants and investment bankers) may derive additional revenue from the market barriers erected by the regulations. Moreover, even poorly conceived regulations may benefit a small number of investors. Removing such regulations may produce a net social benefit by reducing costs for the overall pool of investors. Nevertheless, the minority of investors that benefit from the regulations may suffer large and very visible losses, spurring regulators and Congress (operating under the availability bias) to preserve such regulations. The less observable potential benefits of reduced regulatory costs will tend to be ignored. The SEC therefore has strong incentives to add, but few incentives to pare, regulations. Because imposing regulations is often a one-way street, monopolistic regulators should bear a heavy burden in demonstrating the need to turn down the street in the first place.

Further supporting the strong presumption against monopolistic regulators is the risk that

heavy-handed regulatory interventions designed to address behavioral flaws may backfire. While flawed, the present regulatory regime (which generally ignores investors' behavioral biases) does a reasonable job at protecting investors. The daunting task of weeding out behavioral anomalies among investors and securities professionals may inadvertently reduce the value of the present regime.

2. *The Courts*

Courts, in addition to reviewing SEC decisions, also directly implement statutory and regulatory provisions through their interpretations. For example, courts play the leading role in interpreting "materiality."²¹² Although judges suffer from their own behavioral biases, we nevertheless propose only an intermediate standard for evaluating judge-made law intended to deal with investors' behavioral biases. Proponents would have to demonstrate to a judge (or judges on appeal) substantial evidence that the remedy chosen advances the interest of investors while not burdening the markets more than necessary.²¹³

We support an intermediate presumption for several reasons. First, decentralized judge-made law poses less danger to the market than does the SEC's centralized decisions. Although SEC regulators may seek to expand their regulatory authority and prestige, judges are unlikely to share this motivation. Judges may seek to maximize their own welfare, but for many judges self-interest does not translate into greater regulatory intervention into the securities markets. The judge writing an opinion will typically be limited in his involvement to the specific case and will not reap any benefits ex post from greater regulatory intervention. Judges, therefore, are much less likely than the SEC to interpret the securities laws to expand their authority through

²¹²See, e.g., *TSC Industries, Inc. v. Northway, Inc.*, 426 U.S. 438 (1976) (defining materiality for proxies).

²¹³As we discuss below, we do not provide an explicit plan on how to impose such a presumption on

unnecessary interference with the markets. Second, judges do not suffer from the groupthink that plagues SEC regulators. Dispersed and independent judges, unlike SEC regulators, will have heterogeneous views on how to handle securities markets problems. Judging can be a lonely job, but it does encourage judges to think for themselves.²¹⁴ Finally, the opinions of judges are subject to some measure of feedback. Federal district and circuit court judges face the possibility of appellate review.²¹⁵ While monopolistic regulators may also face eventual court review, review of lower court opinions often occurs more frequently (and sooner in time).²¹⁶ Moreover, unlike monopolistic regulators, lower court judges benefit from seeing how other judges handle similar behavioral issues, which encourages an open-minded approach. Indirectly, judges compete with one another to have their views cited in the opinions of other judges. Large numbers of citations lead to greater prestige for the judges.²¹⁷

Disclosure demonstrates the comparative advantage of courts in responding to market behavioral biases. If investors have bounded rationality, more disclosure simply makes the

courts. At a minimum, courts could voluntarily adopt such an approach to behavioral bias oriented remedies.

²¹⁴ There is evidence, however, that judges may systematically decide cases along ideological lines. See Tracey E. George, *The Dynamics and Determinants of the Decision to Grant En Banc Review*, 74 *Wash. L. Rev.* 213, 238-239 nn. 128-130 (1999) (collecting studies). But see Joseph A. Grundfest and A.C. Pritchard, *Statutes with Multiple Personality Disorders: The Value of Ambiguity in Statutory Design and Interpretation*, 54 *Stan. L. Rev.* 627 (2002) (finding little evidence of a political pattern in judicial interpretations of the “strong inference” provision of the Private Securities Litigation Reform Act).

²¹⁵ We would also impose an intermediate presumption on appeal against judge fashioned remedies targeting behavioral biases.

²¹⁶ The large grant of authority to the SEC to engage in regulatory rulemaking under the securities laws limits the extent of possible judicial review of SEC rulemaking. See, e.g., Section 19(a), Securities Act (“The Commission shall have authority from time to time to make, amend, and rescind such rules and regulations as may be necessary to carry out the provisions of the Act...”); Sec. 23, Exchange Act. As well, aggrieved parties face a general requirement that parties exhaust administrative remedies before seeking judicial review. For an overview of the exhaustion doctrine see Rebecca L. Donnellan, *The Exhaustion Doctrine Should Not Be a Doctrine With Exceptions*, 103 *W. Va. L. Rev.* 361 (2001) (discussing among other things the many exceptions to the exhaustion doctrine). Note that Section 9 of the Securities Act and Section 25 of the Exchange Act explicitly authorize parties aggrieved by a SEC order to seek review at a circuit court. See Section 9, Securities Act; Section 25, Exchange Act.

²¹⁷ It is unclear, nonetheless, how many judges in fact will actively compete over citations. Only a few “superstar” judges may in fact capture the lion share of citations (making it not worthwhile for non-superstar judges to even get into the competition). See, e.g., Stephen M. Bainbridge and G. Mitu Gulati, *How Do Judges Maximize? (The Same Way Everybody Else Does—Boundedly): Rules of Thumb in Securities Fraud Opinions*, 51 *Emory L. J.* 83, 108-09 (2002).

matter worse. The SEC, however, presently pays no attention to the problem of limited investor attention. The SEC has virtually ignored the problem of too much disclosure.²¹⁸ Every crisis of confidence in the securities markets is met with a raft of new disclosure requirements (coincidentally expanding the SEC's authority); seldom, if ever, does the agency subtract from the laundry list of disclosure requirements. Enron, for example, led to a new set of disclosures for special purpose entities, but no reduction in required disclosure in other areas.²¹⁹ Is everything supposed to be important to the average investor? By contrast to the SEC's approach, the materiality standards devised by courts reflect the cognitive limitations facing investors. In announcing the materiality standard, the Supreme Court worried that a lower standard might cause management "to bury the shareholders in an avalanche of trivial information a result that is hardly conducive to informed decisionmaking."²²⁰ The SEC has shown no such restraint.

Despite the advantage of judges relative to SEC, we think good arguments support an intermediate presumption against regulatory intervention by judges to correct cognitive biases. Dispersed non-expert judges may lack expertise in evaluating intervention; while perhaps better motivated and less prone toward overconfidence than the SEC, the lack of expertise still leaves judicial regulation of the securities market prone to error. Judges may also face their own set of behavioral biases.²²¹ While self-interested judges may not maximize regulatory authority, they

²¹⁸ See Roberta Romano, A Comment on Information Overload, Cognitive Illusions, and Their Implications for Public Policy, 59 So. Cal. L. Rev. 313, 324 (1986) ("although mandated disclosure to protect investors is a long-standing, albeit widely debated, policy of corporate law, the perils of information overload are virtually unnoticed in the field.").

²¹⁹ See Proposed Rule: Disclosure in Management's Discussion and Analysis About Off-Balance Sheet Arrangements, Contractual Obligations and Contingent Liabilities and Commitments, Release Nos. 33-8144; 34-46767 (Nov. 5, 2002).

²²⁰ *TSC Industries, Inc. v. Northway*, 426 U.S. 438, 448 – 449 (1976). See also *Kohn v. American Metal Climax, Inc.*, 322 F. Supp. 1331 (E.D. Pa. 1970), modified, 458 F.2d 255 (3d Cir.), cert. denied, 409 U.S. 874 (1972) (stating the buried facts doctrine of materiality).

²²¹ See Rachlinski and Farina, *supra* note 20, at 577 ("From the psychological perspective, the courts are probably the institutions least well-suited to making policy decisions that avoid cognitive traps.").

may instead opt for quick heuristic-like rules to get cases off their dockets.²²² Judges may prefer to dispose of cases quickly, particularly if securities law cases are a disfavored class due to their complexity or other reasons. Judges that generate quick and simple heuristics to dispose of such cases will tend to have their rules cited more often than judges who rely on standards that look to the totality of the facts and circumstances. While heuristics may cut down on decisionmaking costs, they may not produce a rule of law that provides the most cost effective protection for investors and the capital markets. To the extent heuristics are both over and under-inclusive, judge-made securities opinions aimed at investor behavioral biases may produce error-prone rules. Judges may also get caught up in framing effects. Decisions posed as a question of whether to avoid a loss to investors may result in different judicial decisions compared with decisions posed as a question of whether to increase overall investor welfare.²²³

²²² See Sale, *supra* note 275; Bainbridge and Gulati, *supra* note 217, at 100-05. Don Langevoort's response can be found in *Are Judges Motivated To Create "Good" Securities Fraud Doctrine?*, 51 Emory L.J. 309 (2002).

²²³ Robert Prentice's writing unintentionally exemplifies the risk of error by judges who would interpret the securities laws from the perspective of behavioral law and economics. Taking on a "judging" role himself in second guessing courts, Prentice has written about the "irrational auditor" who jeopardizes a firm's reputation by signing off on misleading financial statements. Robert A. Prentice, *The Case of the Irrational Auditor: A Behavioral Insight Into Securities Fraud Litigation*, 95 Nw. U. L. Rev. 113 (2000). Prentice argues at length that behavioral law and economics demonstrates the likelihood that auditors will succumb to this seemingly irrational risk to their firm's reputation. Prentice is responding to Judge Frank Easterbrook's dicta, in dismissing a securities fraud complaint against an accounting firm, that it would have been irrational for the firm and its auditors to jeopardize their reputations through complicity in an alleged fraud by the firm's client. See *id.* at 136 (citing *DiLeo v. Ernst & Young*, 901 F.2d 624 (7th Cir. 1990)). Capital markets share Easterbrook's intuition: stock price reactions are stronger to earnings reports for firms with Big 8 (now Big 4) auditors. See S.H. Teoh and T.J. Wong, *Perceived Auditor Quality and the Earnings Response Coefficient*, 68 Account. Rev. 346 (1993).

Prentice's attack is based on a misreading of Easterbrook's decision, apparently the result of Prentice failing to recognize the application of one of the principal cognitive biases upon which he relies (the base rate fallacy). Easterbrook's dismissal of the complaint is based not on blind faith that people do not act irrationally, but rather the plaintiffs' failure to provide any evidence that irrational acts had occurred. Easterbrook argues:

People sometimes act irrationally, but indulging ready inferences of irrationality would too easily allow the inference that ordinary business reverses are fraud. One who believes that another has behaved irrationally has to make a strong case. The complaint does not come close. *It does not identify any of E & W's auditors or explain what the person might have had to gain from covering up Continental's wrongs.*

DiLeo, 901 F.2d at 629 (emphasis supplied). Easterbrook dismisses the complaint, not because of an irrebuttable presumption of rationality, but because the plaintiffs have alleged no facts to rebut that presumption. The complaint alleged no facts about the accounting firm that would distinguish it from any other accounting firm whose client

Finally, judge-made law may suffer from its own form of the one-way ratchet effect. Judges may be less likely to intrude on the market than SEC officials, but once judges take behavioral biases into account, the force of precedent may lead other judges addressing similar issues to adopt the same position in subsequent cases. Imposing some outside reviewer over SEC regulators will reduce biases within the SEC, but the institutional limitations of judges make us pessimistic about the extent of this reduction. Judges face little competitive pressure to overcome their cognitive failings.²²⁴ Without the disciplining effect of a potential loss of market share or other feedback, we doubt that judges will learn to overcome their cognitive failings. Market participants also will adjust their behavior to take into account new judge-made securities law. Consider a judicial opinion that defines materiality to reflect the disclosure needs of behaviorally-challenged investors. Investors, once aware of this change, may be less skeptical in interpreting information (given the added protection of antifraud liability), which may then leave them more exposed to fraud. Because of the effect of precedent and the practical difficulties of

suffered a business reversal. Compare Jeffrey N. Gordon, What Enron Means for the Management and Control of the Modern Business Corporation: Some Initial Reflections, 69 U. Chi. L. Rev. 1233, 1239 (2002) (providing account of how auditors at Arthur Andersen were compromised in the Enron audit).

Far from ignoring the risk of cognitive bias, Easterbrook imposes a rule that avoids the temptation to fall into the base rate fallacy. Most business reversals are just business reversals. The overall rate of fraud by corporations is very low, and the percentage of those frauds in which the auditors participate is lower still. Prentice acknowledges these facts, but fails to recognize their significance for Easterbrook's approach. See Prentice, *supra* note, at 218 ("in the general run of things, there is no reason to suspect that auditors are auditing fraudulently or recklessly, any more than there is reason to believe that drivers are driving recklessly. Most audits are completed competently, just as most car trips are."). The temptation - when faced by the salient evidence of huge losses that typically prompt securities fraud suits - is to ignore this very low base rate in assessing whether there has been fraud. See *id.* at 158-159 (discussing representativeness heuristic). That temptation is enhanced by the "hindsight bias" - the auditors "must have known" of the fraud when it was being committed in light of the subsequently revealed evidence. See Jeffrey J. Rachlinski, A Positive Psychological Theory of Judging in Hindsight, 65 U. Chi. L. Rev. 571 (1998). The "very high barrier," see Prentice, *supra* note, at 138, erected by Easterbrook simply requires the plaintiff to offer *some* evidence that this case differs from the overwhelming percentage of non-fraud cases represented by the base rate makes. That approach makes perfect sense from the perspective of behavioral economics. Prentice's selective use of cognitive defects is, at a minimum, a warning that judges must handle the insights of behavioral economics with care. In the absence of an organizing theory of cognitive bias, particular biases can be invoked to support or criticize almost any judicial decision.

²²⁴ See Jeffrey J. Rachlinski, Heuristics and Biases in the Courts: Ignorance or Adaptation?, 79 Or. L. Rev. 61, 64 (2000) ("Civil engineers who build faulty buildings will quickly find themselves without clients, but courts are public resources that do not face true competitive pressures. Judges surely have some incentives to make good

reversing past judicial opinions, we favor an intermediate presumption against allowing judges to take investor behavioral biases into account in their decisions.

3. *Competitive Regulators*

Our current regime, under which competition counters the behavioral biases of investors, but not those of regulators, is not pre-ordained. One could, instead, subject securities regulation to the forces of market competition.²²⁵ Securities regulators faced with competition would have less latitude to ignore their own behavioral biases. Regulators that fail to organize their institutional structure to reduce the impact of such biases would lose companies and investors to competing jurisdictions.²²⁶ For this reason, we propose that regulators facing substantial competition from other regulators need only show a likelihood of net benefits when intervening to correct behavioral biases.²²⁷

law and avoid illusions of judgment, but they lack the incentives that other institutions face.”).

²²⁵ See, e.g., Choi & Guzman, *supra* note 151; Roberta Romano, *Empowering Investors: A Market Approach to Securities Regulation*, 107 Yale L.J. 2359 (1998).

²²⁶ See Arlen, *supra* note 96, at 1782 (“[I]n some circumstances, high quality firms may have an incentive to encourage consumers to focus on the risks associated with low quality products.”). The one area that the SEC does face competition – listings by foreign issuers – does reflect the influence of market pressures. Foreign issuers are relieved of a number of the more onerous requirements imposed on domestic public companies. See Exchange Act Rule 3a12-3(b) (exempting foreign issuers from insider trading restrictions and proxy rules). Policies deemed essential to investor protection when applied to domestic companies are mysteriously non-essential when applied to foreign companies. Regulation FD, for example, applies only to domestic issuers. But see Merritt B. Fox, *Regulation FD and Foreign Issuers: Globalization’s Strains and Opportunities*, 41 Va J. Int’l Law 653 (2001) (arguing that Regulation FD’s exemption for foreign issuers is justified). And American markets are already feeling the effect of the reaction by Congress and the SEC to Enron, Worldcom and other accounting scandals. Foreign companies that were considering United States listings have decided against it; some foreign issuers may decide to withdraw from the American market rather than comply with these new regulations. See *Porsche Won’t List Shares in the U.S.*, Wall St. J. C16 (October 17, 2002) (“A factor in Porsche’s decision was the new U.S. rule demanding that chief executives and chief financial officers of U.S.-listed companies attest to the accuracy of their financial results.”). Perhaps for this reason the SEC’s proposed rules on audit committee requirements pursuant to the Sarbanes-Oxley Act, while not completely exempting foreign issuers, provides for a number of specific exemptions. See SEC, *Standards Relating To Listed Company Audit Committees*, Jan 8, 2003.

²²⁷ Despite the current dearth of competition, some adherents of the behavioralist school seem oblivious to the possibility that the existing regulatory structure is anything less than perfect. Robert Prentice, for example, claims: “If issuers and brokers opt into a relatively full measure of public regulation, then investor regulation really would not accomplish much. It would not save any money or create any meaningful efficiencies. Issuers, for example, would continue to bear the expense of full disclosure and antifraud liability.” Prentice, *supra* note 14, at 1418. Prentice implicitly assumes that even in a system of full choice everyone would view the present regime as

The global capital markets have already moved toward greater competition. Investors today can choose where to place their money, including most prominently the NYSE, the London Stock Exchange, the Deutsche Börse and the Tokyo Stock Exchange.²²⁸ To the extent behavioral biases reduce the value of one of these securities markets, competition provides a large incentive for regulators to implement reforms to reduce such biases. The lack of any obvious responses to behavioral biases by these competing securities exchanges calls into question the magnitude of such biases. The choice present in the global capital markets, nevertheless, is somewhat limited. Investors cannot invest on the NYSE without automatically coming under the protection of the U.S. securities laws.²²⁹ For investors and issuers desiring access to the U.S. capital markets, the SEC still enjoys a regulatory monopoly.

Under what conditions will regulatory competition enhance investor welfare (the so-called race-to-the-top)? On the one hand, rational and fully informed investors will incorporate the value to investors of an issuer's selection of a particular regulatory regime into the company's stock price. Issuers will then have an incentive to opt into regimes offering value-increasing investor protections. On the other hand, investors that operate under extreme levels of behavioral biases may miscalculate the value of competing sets of regulatory protections. If so, competition may not improve investor welfare.

Nonetheless, even when behavioral biases affect investors, different investors may be

"optimal." Every regulation is the best in this best of all possible regulated worlds. If the SEC faced competition, is it realistic to expect that the SEC would not change *any* of its policies? The available evidence from markets in which government and private entities compete to provide a service contradicts this assumption. To take a familiar example, it is difficult to believe that government institutions of higher learning are not affected by competition from private universities. Our personal experience at state universities is that the policies of private universities are a very real constraint on the (in)efficiencies of our schools.

²²⁸ For a discussion on the growing competition among global securities exchanges see John C. Coffee, Jr., *Racing Towards the Top?: The Impact of Cross-Listings and Stock Market Competition on International Corporate Governance* (working paper, 2002).

²²⁹ For a discussion of the current tie between securities markets and the securities regulatory see Choi and Guzman, *supra* note 225, at 918.

more or less affected by such biases. Larger institutional investors may have enough self-awareness of their own susceptibility to behavioral biases to value a regime that protects them against such biases.²³⁰ For example, an institution may realize that its managers may suffer from overconfidence, the availability bias, and so on. If a regulatory regime truly solves these problems, the institution may protect itself from the foibles of its own agents by adopting a policy of investing only in companies opting into a protective regime (or discounting companies that do not). To the extent the large institutional investors' decisions are incorporated into the stock market price, smaller investors may free ride on the price as incorporating information on the value of behavioral protections provided through a particular regulatory regime.

Even without any conscious recognition of behavioral biases, institutional and individual investors will flock to regimes offering higher overall returns (for a given level of risk). If behavioral biases reduce returns then investors eventually will abandon such regimes and search for alternatives offering higher returns. Issuers seeking the capital of those investors will then follow suit. For example, suppose the NYSE mandates a minimal trading delay which reduces

²³⁰ And the endowment effect suggests that investors will be reluctant to cede protections that they currently enjoy, even if they would have been unwilling to pay the price to obtain the protections in the first instance. See Jack L. Knetsch & J.A. Sinde, *Willingness to Pay and Compensation Demanded: Experimental Evidence of an Unexpected Disparity in Measures of Value*, 99 Q. J. Econ. 507 (1984). If so, even the cognitively challenged may then free ride off the selectiveness of more informed and rational investors. On the other side of the equation, executives of firms choosing a listing are likely to underestimate their probability of being sanctioned by a regulator (to the extent only a low probability of sanction exists). See Neil D. Weinstein, *Unrealistic Optimism About Future Life Events*, 39 J. Personality & Soc. Psychol. 806, 810 (1980) (finding that people underestimate their probability of being sued). See also Christine Jolls, *Behavioral Economic Analysis of Redistributive Legal Rules*, 51 Vand. L. Rev. 1653, 1663 (1998) ("It is difficult to come up with examples of events giving rise to individual liability the probability of which is likely to be overestimated rather than . . . underestimated."). (Of course, they may periodically overestimate after recent salient examples of enforcement.) This tendency to underestimate personal risks is particularly pronounced for events that are perceived to be within the individual's control. See Peter Harris, *Sufficient Grounds for Optimism?: The Relationship Between Perceived Controllability and Optimistic Bias*, 15 J. Soc. & Clinical Psychol. 9 (1996). Consequently, corporate managers will perceive little risk to selecting regulatory regimes with the most vigorously enforced standards. Investors, by contrast, will be less likely to be overoptimistic in their chances of avoiding fraud, which is largely beyond their ability to control. If so, cognitive biases may help fuel a "race to the top," or even overshooting the top. Of course, this argument may be all wrong. Without knowing the extent of biases or how they interact, predictions of how policies will work in practice are little more than guesswork.

the effect of behavioral biases, increasing overall returns for investors.²³¹ Assume that NASDAQ does not adopt such a delay. Even without knowledge of the precise mechanisms by which returns are increased, investors generally will shift to companies trading on the NYSE, as returns increase (leading more companies to list on the NYSE, thereby increasing overall trading volume and the profitability of NYSE member brokers).

The market, of course, may not behave so efficiently – the example of a trading delay above is unlikely as long as exchanges' profitability is tied to trading volume.²³² Or maybe the market will be unable to overcome pervasive behavioral biases affecting the estimation of institutional investors of their own biases or difficulties that investors face in comparing returns across markets. Such inefficiencies are plausible; the recent performance of the United States stock market supports the possibility of stock bubbles.²³³ Some market participants may attempt to take systematic advantage of the behavioral biases of the less sophisticated (and opt into regimes facilitating such opportunistic behavior). And to the extent new (and behaviorally naïve) investors constantly enter the market, opportunistic participants may have a steady pool of investors upon which to prey. In the long-run, bubbles burst. Eventually, investors may become suspicious of a particular regulatory regime fostering opportunism. But, during this “long run” many investors may in fact lose large sums of money.

To reduce the possibility of only a “long run” adjustment, the government could rely on a hybrid between government oversight and market-based regulators, including existing self-regulatory organizations. Securities exchanges, for example, already have incentives to

²³¹ For a discussion of trading delays and their role in reducing behavioral biases see *infra* Part IV.B.3.

²³² Longer trading delays may result in reduced trading volume. See Adam C. Pritchard, *Self-Regulation and Securities Markets*, Regulation (Spring 2003).

²³³ Certainly the belief that a stock market bubble existed toward the end of the 1990s is prevalent in the financial press. See Dennis K. Berman et al., *Tricks of the Trade: As Market Bubble Nears End, Bogus Swaps Provided a Lift*, Wall St. J., Dec. 23, 2002, at A1; Ianthe Jeanne Dugan, *Fingers Point at New Jersey Fund – Pension Operation Racks Up Huge Losses Since Bubble Burst, Prompting Suits*, Wall St. J., Dec. 23, 2002, at C1.

implement investor-related protections.²³⁴ To the extent investors are better protected when investing in firms that trade on a particular exchange, the exchange (and its members) will earn greater revenues in the form of listing fees as well as commissions on trading volume.²³⁵ Just as a securities exchange can protect rational investors (who may lack information or expertise to protect themselves), exchanges can also provide protections for behaviorally-challenged investors. Exchanges may also have more expertise in determining the types and magnitudes of biases affecting investors compared with more distant regulators.²³⁶

The SEC may then enhance the competition among exchanges, monitoring the regulation provided by private exchanges.²³⁷ As under the current self-regulatory organization regime,²³⁸ we see value in having exchanges justify their proposed regulations to the SEC. Requiring private exchanges to submit to SEC review may lead the exchanges to avoid many possible behavioral biases themselves.²³⁹ If private regulators must justify their actions, they will be less likely to employ short-cut heuristics. Spelling out the case for new private regulations may also help expose over-reliance on salient information as well as combat overconfidence. Moreover, the SEC, with its expertise, may prove a better monitor than the judiciary or Congress. An

²³⁴ See A.C. Pritchard, *Markets as Monitors: A Proposal To Replace Class Actions with Exchanges as Securities Fraud Monitors*, 85 Va. L. Rev. 925 (1999); Paul Mahoney, *The Exchange as Regulator*, 83 Va. L. Rev. 1453 (1997).

²³⁵ But see Stephen Craig Pirrong, *The Self-Regulation of Commodity Exchanges: The Case of Market Manipulation*, 38 J. L. & Econ. 141 (1995) (arguing that exchanges will have sub-optimal incentives to combat market manipulation because it may increase trading volume).

²³⁶ Prentice argues that investors did not bargain for right level of disclosure before the passage of the federal securities laws. See Prentice, *supra* note 15, at 1453. But as Prentice acknowledges, there is no evidence that investors demanded more regulation than NYSE provided. Nonetheless, Prentice claims to know that investors failed to bargain for the correct level of disclosure. He does not explain, however, how he knows what the right level is. The more relevant question than what the NYSE did in the Nineteenth Century is what would the NYSE be doing today if SEC had not been invented?

²³⁷ See Adam C. Pritchard, *Self-Regulation and Securities Markets, Regulation* (forthcoming, 2003).

²³⁸ See Section 19, Securities Exchange Act. The SEC has the power to to approve, disapprove or modify SRO rules as it "deems necessary or appropriate to insure the fair administration of the self-regulatory organization" and among other things. See 15 U.S.C. § 78s(c).

²³⁹ See generally Jennifer S. Lerner & Philip E. Tetlock, *Accounting for the Effects of Accountability*, 125 Psychol. Bull. 255 (1999) (surveying evidence on the effects of accountability on decisionmaking).

independent SEC may also avoid cognitive dissonance lock-in effects in reviewing private regulatory actions adopted by exchanges and other SROs.

The SEC therefore may have a limited role to play in providing a safety net for regulatory competition, protecting against the fear that behavioral biases may lead issuers to select ever-decreasing levels of investor protection. Moreover, placing the SEC in a secondary position of monitoring exchange-provided protections lessens the risk that the SEC will use its monopoly power to push forward unwarranted protections (or protections designed to expand the SEC's own authority). Once limited to reviewing regulations (rather than imposing its own regulations), the SEC's confirmation bias will be reduced. Overconfidence will also play less of a role in SEC review to the extent the SEC itself does not initially generate exchange-based regulatory initiatives (or become involved in their implementation).²⁴⁰

When behavioral biases pervade the market, competition may not fully weed them out. Nonetheless, even possibly imperfect competition may better address behavioral biases than would a monopolistic regulator. While the possibility of a race-to-the-bottom theoretically exists (fueled perhaps by opportunistic issuers and other market participants seeking to exploit behaviorally challenged investors), we believe that the presence of more rational investors (and a pricing mechanism to transmit their choices to others) as well as the on-going desire of investors to seek markets with higher returns reduce the downside likelihood of a race-to-the-bottom. Moreover, without the threat of competition, we cannot know if biases are inevitable or merely an excuse for poor regulatory decisionmaking.²⁴¹ Indeed, competition may lead regulatory

²⁴⁰ Significantly, we focus on the SEC's authority to review exchange-based decisions. We are less supportive of the SEC's power to modify unilaterally exchange rules (including adding new rules), which empowers the SEC to force exchanges to adopt SEC initiatives.. See Section 19(c), Exchange Act. This authority opens the backdoor for the SEC to use exchanges to forward its own mandatory regulatory agenda subject to the behavioral biases plaguing regulators without any tempering from competition.

²⁴¹ The possibility of regulatory competition may not eliminate all biases within regulators. As with private securities market institutions, organizational illusions will remain within regulators. See *supra* text accompanying

regimes seeking to attract investors to adopt those oversight mechanisms (including judicial review and legislative oversight) that provide the most cost-effective means of reducing biases among regulators. Competition would provide greater assurance that judicial review and legislative oversight reduce regulator biases to the net benefit of investor welfare.²⁴²

B. Forms of Regulatory Intervention

Behaviorally-challenged regulators present the distinct risk of ill-advised intervention to correct investor behavioral biases. Moreover, the same behaviorally-challenged regulators may refuse to recognize their errors, compounding the costs to investors over time. The form of regulatory intervention, in turn, has considerable influence on the overall cost of potential regulatory error. The presumption against regulatory intervention should correspondingly vary with the magnitude of potential error.

In this section we canvass three forms of intervention: (1) regulations that restrict the range of available investments, directly supplanting market decisionmakers; (2) regulations that adjust existing securities regulatory provisions in ways that may indirectly supplant the market (through excessive regulatory costs leading to fewer investment choices); and (3) regulations that influence investors' decisions, but only minimally restrict their available choices.

notes 73-93 (discussing the behavioral biases afflicting securities market institutions). Nonetheless, those biases that persist will be those that make the regulators more effective. For example, overconfidence and groupthink, to some extent, may help make the SEC a cohesive body with high morale. As with private organizations, the competitive environment then necessarily limits the impact of such biases. Where overconfidence and groupthink are so extensive as to reduce the value of SEC's provided regulations to investors in a competitive environment, investors will switch to the regulatory protections of a competing supplier.

²⁴² Despite our analysis, some may remain unconvinced of the value of regulatory competition in reducing the influence of behavioral biases on regulators. Those skeptical of competition, therefore, may wish to adopt a greater presumption against regulatory intervention targeting behavioral biases (including possible intermediate or strict levels of presumptions against intervention). Our central point, however, is that those who question the ability of even competitive regulators to effectively counteract investors' biases should also question the ability of

1. *Restricting Investment Options*

We contend that regulators seeking to supplant the market in order to correct behavioral biases should bear the burden of overcoming a strong presumption against regulation. Such market-supplanting interventions should be supported by evidence demonstrating a high likelihood of net benefits of the regulations and the lack of any less restrictive alternative, thereby minimizing potential errors.

For those convinced of the severity of behavioral biases among investors, depriving investors of certain investment options has obvious appeal. The most extreme version of this approach is merit regulation (surprisingly ignored by adherents of the behavioral approach) under which regulators simply remove “undesirable” investments from the market altogether.²⁴³ Put simply, if investors lack the ability to make good investment decisions then why not have regulators make this decision for investors?

Behavioralist economics, if taken seriously, would seem to point to merit regulation. Will behavioral economics take us back to the quasi-socialist interventionism advocated by William O. Douglas and his fellow travelers?²⁴⁴ Given the well-known defects of merit regulation, this agenda seems unlikely to gather steam.²⁴⁵ Merit regulation founders on the problem facing any central planner in a complex economy: even expert regulators cannot begin to assign relative values to every single investment. Throw in the element of change in a dynamic economy and the problem becomes overwhelming. Indeed, the limits of regulators attempting merit regulation

monopolistic regulators (cushioned against any form of competitive pressure) to do so, lending support for our strict presumption against intervention for relatively monopolistic regulators.

²⁴³ Note that it is unclear what exactly constitutes “undesirable” investments. High risk investments are not necessarily undesirable if they provide a correspondingly high return.

²⁴⁴ William O. Douglas, *Protecting the Investor*, 23 *Yale Rev.* 521, 524 (1934) (bemoaning the lack of merit regulation in the Securities Act: most investors have neither “the time, money, nor intelligence to assimilate the mass of information in the registration statement.”).

²⁴⁵ See Mark A. Sargent, *A Future for Blue Sky Law*, 62 *U. Cinn. L. Rev.* 471 (1993) (chronicling the demise of merit regulation); Rutherford B. Campbell, Jr., *An Open Attack on the Nonsense of Blue Sky Regulation*,

can be viewed as one of bounded rationality. Decentralized market actors following the “invisible hand” bring much greater aggregate processing power and localized knowledge to bear in determining the proper allocation of capital and other resources to meet people’s preferences.²⁴⁶ No single regulatory body, no matter how expert, can hope to match the capacity to value securities of greed-driven market participants.²⁴⁷ The worldwide collapse of socialism leaves little room for debate on the superiority of decentralized markets over central planners. Taken to its logical extreme, behavioral economics offers the questionable benefit of North Korean-style efficiency to our financial markets.

Perhaps we are unduly pessimistic; less invasive regulatory options are available. One example would be precluding trading in the (worthless) shares of bankrupt companies.²⁴⁸ Regulators also could require certain investors to invest through market intermediaries.²⁴⁹ Regulators could similarly restrict the choices available to unsophisticated investors to a subset of the investment opportunities in the market. This strategy has already been implemented in part. For non-accredited individual investors, for example, few (if any) opportunities exist to invest in securities of firms that choose not to register their securities in a public offering.²⁵⁰ Nonetheless, any issuer may overcome this barrier by registering their securities offering with the SEC and making the required disclosures, thereby gaining access to *all* investors.²⁵¹

10 J. Corp. L. 553 (1985).

²⁴⁶ See Adam Smith, *The Wealth of Nations* vol. I, 421 (1902).

²⁴⁷ Ivan Boesky during the 1980s is actively pushed the notion that “greed is good”. See Roberta S. Karmel, *A Decade of Greed*, N.Y.L.J., March 1, 1990, at 3 (noting that Boesky stated at a UC Berkeley Business School graduation that “‘Greed is all right, by the way. I want you to know that. I think greed is healthy. You can be greedy and still feel good about yourself’”) (citing Douglas Frantz, Levine & Co.: Wall Street’s Insider Trading Scandal 145 (1987)).

²⁴⁸ See Marc Hopkins, *Shares of Distressed Companies Still Manage to Reel in Buyers*, Wall St. J. B4C (Jan. 22, 2003) (discussing active trading in shares of bankrupt companies even after companies have disclosed that common stock will be wiped out in reorganization).

²⁴⁹ See Stephen Choi, *Regulating Investors Not Issuers: A Market-Based Proposal*, 88 Cal. L. Rev. 279 (2000).

²⁵⁰ See *infra* notes 255-256 and accompanying text (describing private placements).

²⁵¹ Public registration involves, among other things, the creation and filing of a registration statement with

Proponents of the view that investors suffer from behavioral biases may wonder whether the disclosure required for a public offering in fact address the needs of the behaviorally-challenged.²⁵² Those who doubt the value of disclosure in rectifying behavioral biases among investors may instead wish to cabin the securities choices available to investors with higher levels of behavioral biases.

Although potentially the most effective means of addressing behavioral biases among investors, regulations designed to supplant market decisionmakers also pose the greatest risk of error. To begin, it may be difficult to sort the investors who need to be protected from themselves from those who should be given free rein in devising their investment strategies. Competitive pressures may suffice for investors who act completely rationally and seek to maximize their overall investment return (given their preference for risk). On the other hand, policymakers might improve overall investor welfare by limiting securities transactions if they were confident that they were curtailing primarily speculatively motivated trades.²⁵³ This response, of course, assumes that policy intervention to discourage such trades is justified.²⁵⁴

How do we distinguish investors recklessly speculating from those prudently rebalancing their portfolio based on fundamental analysis of company prospects? These trades all look alike as they come across the ticker. How can we sort these rational traders from those investors wracked with cognitive illusions, loss aversion tendencies, and availability biases? Regulators who cannot make such distinctions run the risk of providing unneeded and costly regulatory protections for many investors who do not want or need them.

the SEC. For a description of the registration process see James D. Cox, Robert W. Hillman, Donald C. Langevoort, *Securities Regulation: Cases and Materials* 211-321 (2d ed. 1997).

²⁵² See *supra* Part III.B (questioning the ability of disclosure to correct for behavioral biases).

²⁵³ See Stout, *supra* note 60.

²⁵⁴ See *supra* Part II.B (discussing the possibility that some investors have preferences for speculation in their investments).

The problem of partitioning investors is not new. The private placement exemption under the securities laws allows investors who can “fend for themselves” more latitude to invest in relatively less-regulated private placement offerings.²⁵⁵ Even in this well-trodden field, controversy exists on how to determine if an investor qualifies as sophisticated.²⁵⁶ Determining which investors may suffer from behavioral biases poses an even more daunting task. Because no unifying theory explains why we suffer from behavioral biases, we cannot predict which investors suffer from biases, nor can we gauge the magnitude of these biases. Generalizations are possible. Expert investors, for example, may suffer from fewer availability and framing biases. Their experience and training “allow” them to “see” such biases and avoid them. For example, Wall Street veterans warn newcomers “Don’t confuse brains and a bull market,” a reminder about the risks of self-serving justification and failure to pay heed to the base rate of investment success.²⁵⁷ On the other hand, experts may suffer more from overoptimism and heuristics when applying their expertise in areas outside their primary area.²⁵⁸ Without some underlying theory of biases, we cannot say whether the magnitude of biases afflicting experts is greater (or lesser) than the biases of ordinary investors. Absent the ability to distinguish among investors, crafting regulatory responses to behavioral biases becomes a guessing game.

One response might be that all investors are equally behaviorally challenged and thus equally in need of regulatory intervention.²⁵⁹ Alternatively, one might contend that, as a

²⁵⁵ See *SEC v. Ralston Purina Co.* 346 U.S. 119, 125 (1953) (introducing the concept of investors being able to “fend for themselves” in interpreting the scope of Section 4(2)’s exemption from the Securities Act’s registration requirements under Section 5). A safe harbor for private placements is provided under Regulation D of the Securities Act. See Rules 501-508, Securities Act.

²⁵⁶ See C. Edward Fletcher, *Sophisticated Investors Under the Federal Securities Laws*, 1988 Duke L.J. 1081; Friedman, *On Being Rich, Accredited, and Undiversified: The Lacunae in Contemporary Securities Regulation*, 47 Okla. L. Rev. 291 (1994).

²⁵⁷ See Chip Heath, Richard P. Larrick, and Joshua Klayman, *Cognitive Repairs: How Organizational Practices Can Compensate for Individual Shortcomings*, 20 *Res. in Org. Behavior* 1, 6 (1998).

²⁵⁸ See Griffin and Tversky, *supra* note 28.

²⁵⁹ See Prentice, *supra* note 15, at 1450 (“[M]any, if not most investors, even with more information, will

normative matter, we should target our regulatory efforts to protect those least cognitively able. Distinguishing among investors then becomes a non-issue (as all regulatory protections focus on the least able regardless of the actual sophistication of particular investors). We think that this response ignores a number of potential costs.

First, even inexperienced and cognitively challenged investors are capable of learning. Once freed of the responsibility and discipline of making investment decisions, investors lose the feedback mechanism that facilitates such learning. Indeed, some investors may come to believe (overoptimistically) that regulatory protections fully insulate them from investment risks. When this is not true (and even merit regulation cannot eliminate all investment risks) investors with overconfidence in the power of regulation will then take even less care and may face a greater risk of facing large financial losses as a result.

Second, supplanting markets limits the ability of investors to ameliorate the effects of ill-conceived forms of regulation, leading to higher error costs. Merit regulation and other means of restricting choices curtail investment options in the United States. As an alternative, U.S. investors and issuers may attempt to engage in capital market transactions outside the United States. Both U.S. issuers and investors, however, face higher transactions costs in finding overseas markets in which to transact, plus the potential for foreign securities regulations that conflict with the demands of U.S. regulatory requirements.

Finally, regulations that remove choice from investors also risk the one-way ratchet effect. Markets work, but not if regulation chokes them. Once regulations supplant the market, investors' decisionmaking skills may atrophy. Intermediaries that aid investors may exit the market. If regulations leave investors incapable of protecting themselves and thwart institutions that could help, regulatory protections that were originally unwarranted may become essential.

be unable to adequately protect themselves under [an issuer choice regime].”).

Before regulators trigger this self-fulfilling scenario of investor dependency, regulators should overcome a strong presumption against interventions that remove choice.

2. *Adjusting Existing Securities Regulation*

Regulators may account for behavioral biases in other ways. In particular, regulators may adjust the contours of existing regulatory provisions to counteract cognitive illusions. While intervention of this sort will not eliminate investment options completely, they may hinder (greatly) such choices. We therefore propose that interventions into the contours of existing securities regulation to correct for behavioral biases must overcome a medium presumption, providing a substantial likelihood of net benefits.

While current securities regulations cover many facets of the securities markets, here we discuss three: the definition of materiality, antifraud liability, and the gun-jumping rules for registered public offerings. Disclosure forms the central focus of most of the federal securities laws. In a public offering, issuers must put together a registration statement for filing with the SEC and must distribute a statutory prospectus widely to the securities market as part of the offering.²⁶⁰ Most publicly traded issuers also must comply with periodic disclosure filing requirements.²⁶¹ From a behavioral perspective, however, disclosure risks confusing investors

²⁶⁰ See Cox et al., *supra* note 251, at 211-321.

²⁶¹ The Exchange Act imposes periodic information reporting requirements for certain issuers, commonly known as “Exchange Act reporting companies”. Companies listed on a national securities exchange as well as companies whose total assets exceed \$10 million and have a class of equity security (other than an exempted security) held of record by more than 500 shareholders, among others, must register and comply with the SEC’s periodic information disclosure requirements must register the securities under the Exchange Act and thereby come under the periodic reporting requirements of Section 13(a). See Securities Exchange Act of 1934, 15 U.S.C. § 78m(a) (1994); Securities Exchange Act of 1934, 15 U.S.C. § 78l(b) (1994); Securities Exchange Act of 1934, 15 U.S.C. § 78m(a) (1994); Securities Exchange Act of 1934, 15 U.S.C. § 78l(g) (1994); see also 17 C.F.R. § 240.12g-1 (2001) (raising asset requirement to \$10 million). These required periodic information filings include annual Form 10-K, quarterly Form 10-Q, and occasional Form 8-K documents. See 15 U.S.C. § 78m(a); 17 C.F.R. § 240.13a-1 (2001) (providing rules on periodic disclosure requirements of Exchange Act registered companies); 17 C.F.R. § 249.310 (2001) (Exchange Act Form 10-K); 17 C.F.R. § 249.308 (2001) (Exchange Act Form 8-K); 17 C.F.R. § 249.308a (2001) (Exchange Act Form 10-Q).

already suffering from bounded rationality, availability and hindsight.

This risk of confusion calls into question the threshold materiality requirement used throughout the securities laws' disclosure provisions.²⁶² Current securities regulations takes an objective approach, defining materiality in terms of what information a reasonable investor would want in light of the total mix of information presently available in the market.²⁶³ If many investors suffer from behavioral biases, the "reasonable" investor becomes more difficult to identify. But how would we alter the standard? If investors are easily led astray by overoptimism, then perhaps a broader definition of materiality is required. For example, the definition might be expanded to include "puffery" that could trigger overoptimism.²⁶⁴ On the other hand, bounded rationality implies that investors will have limited attention spans – requiring more disclosure may cause them to ignore more important information.²⁶⁵ Indeed, armed with an overconfident sense of his ability to digest mountains of disclosure, an investor may miss important aspects of disclosure.²⁶⁶ Bounded rationality may therefore lead one to recommend a *narrower* concept of materiality for securities disclosure to reduce the amount of information given to investors.²⁶⁷

Adjusting information disclosure to ameliorate behavioral biases of investors is a difficult

²⁶² Rule 408 of the Securities Act, for example, provides: "In addition to the information expressly required to be included in a registration statement, there shall be added such further material information, if any, as may be necessary to make the required statements, in the light of the circumstances under which they are made, not misleading." Rule 408, Securities Act.

²⁶³ See *TSC Industries, Inc. v. Northway*, 426 U.S. 438 (1976).

²⁶⁴ Many courts today exclude puffery from the definition of materiality. See *Eisenstadt v. Centel Corp.*, 113 F.3d 738 (7th Cir. 1997). See also Jennifer O'Hare, *The Resurrection of the Dodo: The Unfortunate Re-emergence of the Puffery Defense in Private Securities Fraud Actions*, 59 Ohio St. L.J. 1697 (1998).

²⁶⁵ Robert Prentice notes "that investors typically do not read disclosure documents when investing in securities." See Prentice, *supra* note 15, at 1456. See also David Hirshleifer, Seongyeon Lim & Siew Hong Teoh, *Disclosure to a Credulous Audience: The Role of Limited Attention*, (Working Paper, February 4, 2002).

²⁶⁶ See Kent Daniel, David Hirshleifer, and Siew Hong Teoh, *Investor Psychology in Capital Markets: Evidence and Policy Implications*, at 60 (Working Paper, August 3, 2001) ("Greater disclosure is not an unalloyed virtue, because investors can lose the forest for the trees.").

²⁶⁷ This narrower conception is embodied today within the buried facts doctrine. See *supra* note 220 and accompanying text.

and error-prone task. Moreover, limiting information flows for the benefit of the behaviorally challenged will undermine the ability of more rational investors to value securities accurately. The result could be diminished securities market efficiency. Reduced market efficiency may then increase the risk to investors of putting money into new securities offerings, raising the cost of capital and thereby constricting the range of available investment opportunities for investors.

Closely related to disclosure are the various antifraud provisions of the securities laws.²⁶⁸ Stringent antifraud provisions (and accompanying private and public enforcement) help ensure that the disclosures made to investors are truthful and accurate. Even if investors cannot process information rationally, the threat of private litigation and public enforcement may deter fraud and opportunistic behavior. As with disclosure, materiality forms a key component of antifraud liability.²⁶⁹ Regulators attempting to expand the definition of materiality to take into account the range of behavioral biases may fail to gauge accurately the extent of such biases. Expanding the materiality concept may also lead to more frivolous lawsuits, thereby impairing the value of antifraud liability as a deterrent against fraud.²⁷⁰ Firms may also reduce their disclosures in an effort to avoid their exposure to fraud suits. Both frivolous suits and reduced disclosure will raise the cost of capital, once again resulting in fewer investment opportunities for investors.²⁷¹

²⁶⁸ For an overview of the antifraud provisions of the U.S. securities laws see Cox et al., *supra* note 251, at 589-649, 681-774.

²⁶⁹ Rule 10b-5 makes unlawful for any person: "To make any untrue statement of a material fact or to omit to state a material fact necessary in order to make the statements made, in the light of the circumstances under which they were made, not misleading . . ." (assuming the other requirements of Rule 10b-5 are met). See Rule 10b-5, Exchange Act.

²⁷⁰ For a summary of the frivolous lawsuit literature see Stephen Choi and James Bohn, *Fraud in the New Issues Market: Empirical Evidence on Securities Class Actions*, 144 U. Pa. L. Rev. 903, 918-23 (1996).

²⁷¹ Another complication for strategies to alter the materiality standard to correct behavioral biases is that many biases may vary in intensity and impact with the market context. See, e.g., Arlen et al., *supra* note 33, at 33 (reporting evidence that the endowment effect varies by context). Reported instances of fraud, for example, may be particularly salient information for investors attempting to gauge market risks. Investors suffering from an availability bias, however, will draw inappropriate inferences from the revelation of fraud. When an Enron-type situation is disclosed, investors may overreact, withdrawing too much money from the markets. Conversely, when no major frauds have been disclosed recently, investors may be too sanguine about their investments. Regulators attempting to correct for such fluctuations in the views of investors may be tempted to change the antifraud and

Another concern with altering antifraud standards to accommodate cognitive biases is that corporate managers and accountants may not engage in fraud consciously. Fraud traditionally requires scienter. Misleading information, however, may be the byproduct of the cognitive failings of managers and accountants and their organizations. The tendency toward overoptimism may result in a cascade of only optimistic information from the bottom of a corporate hierarchy to the top, magnifying the positive aspects of information flows perhaps to the point of becoming materially misleading.²⁷² But if corporate managers and accountants are themselves led by their own cognitive defects to mislead investors, what can antifraud liability do about it?²⁷³ Presumably a person is not intentionally misleading anyone if they are making false statements under the influence of a cognitive defect (e.g., due to irrational overoptimism).²⁷⁴ Even recklessness would seem a stretch – if cognitive defects are pervasive, a false statement that resulted from such a defect could not be an extreme departure from the standard of ordinary care because ordinary care would be defined by the cognitive defect (e.g., if all ordinary people suffer from irrational overoptimism).

Changing the standard of antifraud liability to strict liability is no answer; cognitive defects may be extremely difficult to overcome, in which case liability would serve little purpose

disclosure regimes to accommodate this variation. Materiality, for example, could be expanded to cover a wider range of information in times when investor confidence is low to induce more capital flow into the market. Such constant accommodation, however, is an enormous task – and therefore subject to a much greater degree of error (and possible investor confusion as the standards for antifraud liability change). On the other hand, the fraud regime may in fact already vary implicitly on the salience of recent fraud without any intervention by regulators, if highly-publicized fraud makes jurors more willing to impose liability on businesses. See Michael Orley & Milo Geyelin, *Lawyers Find Jury Pools Polluted by Antibusiness Biases*, *Wall St. J.* B1 (August 12, 2002).

²⁷² See Langevoort, *supra* note 88, at 120-22 (stating that “[t]he difficulty, of course, is that if material information must pass through a number of relay points in a hierarchy, the message can change (and lose accuracy) in the process.”).

²⁷³ Cf. Stephen M. Bainbridge, *supra* note 13, at 1057 (“Managerial decisionmaking biases will not disappear simply because the state adopts a mandatory disclosure regime.”).

²⁷⁴ See Langevoort, *supra* note 14, at 158 (“If we are seriously interested in deterring corporate deception, then fraud liability should not turn on conscious awareness by the specific senior executives responsible for corporate communications of the misleading nature of their misstatements or omissions.”).

in changing behavior.²⁷⁵ Expanding liability for misstatements would simply transfer money from corporations and their managers to investors and lawyers, with no reduction in fraud. The net result would be to increase the cost of investment. If anything, the lessons of the behavioralists may favor protecting defendants by raising the standards for establishing liability.²⁷⁶ Overconfident plaintiffs' lawyers may be bringing suits with little chance of success.²⁷⁷ And corporate defendants may overestimate the risk of liability given the salience of the occasional large verdict in this area, such as the recent \$3 billion payout by Cendant.²⁷⁸ The net result could be a general chilling of corporate speech.

The "gun-jumping" rules are another area that might be reconsidered. Companies going public must go through a tightly controlled process when making a public offering. Under the gun-jumping rules, companies must avoid "conditioning" the market during the period prior to the filing of the registration statement with the SEC.²⁷⁹ The behavioralist critique might suggest even more stringent limitations on pre-offering disclosures by companies to curtail the tendency of investors to go into a "frenzy" over an upcoming public offering. If investors are prone to overconfidence and overoptimism, even the most routine disclosures could generate an overly enthusiastic response and thereby condition the market. Taking behavioral law and economics into account, therefore, could further reduce the disclosure of material information during the

²⁷⁵ Cf. Hillary A. Sale, Judging Heuristics, 35 U.C. Davis L. Rev. 903, 919 (2002) ("People facing high-risk situations, are more likely to gamble on a risky outcome than to accept the loss upfront. 'Rational' or not, their commitment to the situation escalates, sunk costs dominate, and the ability to pull back and reexamine the situation is diminished.").

²⁷⁶ Cf. Langevoort, *supra* note 14, at 162 (pointing out that the "puffery" doctrine allows courts "to weed out—without the need for fact-intensive discovery into corporate state of mind—the kinds of cases where optimistic bias, rather than intentional deceit, is particularly likely to have drive the allegedly misleading disclosure.").

²⁷⁷ See Langevoort, *supra* note 82, at 862-863 ("But as often as not, I suspect, lawyers bringing low-merit suits have an honest but nonetheless self-serving assessment of those merits. Once committed to the claims, they are motivated to consider them legitimate, if not clear-cut winners.").

²⁷⁸ See Jolls et al., *supra* note 31, at 1525 ("In a case in which the threat of being found liable is highly salient, individuals may tend to *overestimate* the likelihood of being sanctioned").

²⁷⁹ See Guidelines for the Release of Information by Issuers Whose Securities Are in Registration, SEC Release No 5180, 1 Fed Sec L Rptr (CCH) at 3056 (Aug 16, 1971) (listing rationale of gun-jumping rules to stop

quiet period. The reduction of information again may have negative effects on overall market efficiency, raising the cost of capital and restricting investment choices for investors.

In sum, regulatory adjustments to materiality, antifraud, and the gun-jumping rules to address behavioral biases may do as much harm as good to the market. Moreover, many of the regulatory responses may perversely result in higher costs generally for investors and issuers, reducing the number of investment options available for investors.²⁸⁰ For these reasons, regulators should show a substantial likelihood of net benefits before adjusting the contours of current securities regulations to correct cognitive biases.

3. *Influencing Investors*

Regulators might instead modify the decisionmaking environment for investors. Efforts to improve investors' decisions should only overcome a weak presumption, requiring a showing of the likelihood of net benefits. To be sure, even these milder interventions to correct cognitive errors pose risks. If "debiasing" investors proves ineffective, we worry that little stands in the way of regulators moving incrementally toward more interventionist and costly approaches.

If the greatest harm from cognitive biases and speculation stems from investors investing too quickly and trading too much, perhaps regulators should simply discourage trading. One path to encouraging a more "rational" decisionmaking environment would be to impose trading delays on investors.²⁸¹ With a trading delay, investors would have more time to contemplate

the conditioning of the market).

²⁸⁰ As with interventions that displace the market, overly strict regulations may cause market participants to adjust in ways that further entrench those regulations. Regulating to accommodate biases may undermine the efforts of investors to learn and adjust for their biases, making otherwise unnecessary regulatory interventions indispensable. Reducing mandatory disclosure to take into account behavioral biases may generate new norms in the market around this lower level of disclosure. Expanding the definition of "conditioning" the market under the gun-jumping rules may similarly affect market norms, reducing the pressure to undo even ill conceived regulations.

²⁸¹ For a discussion on the ability of trading delays (preceded by information disclosure) to reduce the advantage of informed traders in the markets, see Ian Ayres and Stephen Choi, *Internalizing Outsider Trading* —

their decision. Investors might recognize their behavioral biases during that “cooling off” period and thereby engaging in more rational decisionmaking.²⁸² Trading delays do pose the risk of increasing transaction costs for investors. Investors that profit from the ability to trade instantly on new information may bear particularly high costs from trading delays (thus discouraging investments in obtaining timely information). Nevertheless, short trading delays do not preclude investors from constructing their chosen portfolio. The market may also react to lessen the cost of delays imposed on trading decisions. Investors who need to trade for long term planning purposes, such as tax considerations or tuition bills, may simply initiate their trades sooner than they otherwise would.

Trading delays, however, are not a panacea. Trading delays may encourage impatience instead of diminishing overconfidence. Moreover, it is unclear whether trading delays will generate more informed decisionmaking or simply higher transaction costs.²⁸³ If people are incapable of recognizing their own biases, they may experience considerable disutility from intervention to correct those biases. Worse yet, if we succeed in discouraging people from speculative trading and/or discourage investors with behavioral biases from trading, do we also risk discouraging them from participating in the stock market at all? The speculator might be better off if he traded less, but would he be better off with his money in a passbook savings account? Perhaps a little speculation is needed to encourage investment over consumption. And

Mich. L. Rev. __ (2002).

²⁸² Alternatively, regulators may deter overly optimistic investors from engaging in excessive trades through a trading tax. Joseph E. Stiglitz, Using Tax Policy to Curb Speculative Short-Term Trading, 3 J. Fin. Services Res. 101 (1989) (making the case for taxing speculative securities transactions); Lawrence H. Summers & Victoria P. Summers, When Financial Markets Work Too Well: A Cautious Case for a Securities Transaction Tax, 3 J. Fin. Serv. Res. 261 (1989) (same). But see Joseph A. Grundfest & John B. Shoven, Adverse Implications of a Securities Transactions Excise Tax, 6 J. Acct. Auditing & Fin. 409 (1991).

²⁸³ Others have put forth recommendations to “debias” human decisionmakers in the jury context (with respect in particular to the hindsight bias). See Hal R. Arkes, Principles in Judgment/Decision Making Research Pertinent to Legal Proceedings, 7 Behav. Sci. & L. 429, 450-51 (1989). These attempts, however, have not met with much success. See, e.g., Kim A. Kamin & Jeffrey J. Rachlinski, Ex Post not Ex Ante: Determining Liability in

the liquidity produced by speculative trading does lower execution costs for investors who need to trade for liquidity reasons. Discouraging speculation could force investors into black market alternatives, such as offshore accounts that allowed them to trade more often.

Education can also influence investors' decisions. Perhaps disclosure – particularly if focused on relative investment performance – can educate investors and thereby reduce the overall level of irrationality in the securities markets.²⁸⁴ Learning and feedback may help diminish the impact of cognitive biases.²⁸⁵ Studies in other areas of cognition have shown that participants, when told to consider the perspective of other parties or to consider the likelihood of alternative outcomes, can mitigate the effect of certain biases.²⁸⁶ Of course, little can help the intractably irrational. But investors need not be free of cognitive biases, just aware of their own deficiencies. Regulators could educate investors and train them to avoid behavioral pitfalls.

Despite the positive arguments in favor of minimal intervention to educate and caution investors to correct for behavioral biases, we still argue for a weak presumption against their use. The silence of the SEC on the well-documented advantages of passive investing for the small investor is deafening. We have little confidence that the SEC will soon see the light and begin to

Hindsight, 19 *Law & Hum. Behav.* 89, 99 (1995).

²⁸⁴ See James Fanto, *We're All Capitalists Now: The Importance, Nature, Provision and Regulation of Investor Education*, 49 *Case W. Reserve L. Rev.* 105 (1998). See also Peter Sedlmeier, *Improving Statistical Reasoning: Theoretical Models and Practical Implications* (1999). But see Henry T.C. Hu, *Faith and Magic: Investor Beliefs and Government Neutrality*, 78 *Tex. L. Rev.* 777, 840- 842 (2000) (criticizing the SEC's educational efforts).

²⁸⁵ See Mitchell, *supra* note 6, at 31-40 (summarizing studies showing the ability of learning to improve decisionmaking).

²⁸⁶ See Linda Babcock & George Loewenstein, *Explaining Bargaining Impasse: The Role of Self-Serving Bias*, 11 *J. Econ. Persp.* 109, 115 (1997) (noting that having disputants write down arguments convincingly for their opponent's side reduced the discrepancy in expectations of the two sides in dispute); D. Jordan Lowe & Philip M.J. Reckers, *The Effects of Hindsight Bias on Jurors' Evaluations of Auditor Decisions*, 25 *Decision Sci.* 401, 401-14 (finding evidence that having jurors consider alternative possible outcomes reduces the hindsight bias). Nonetheless, a question remains whether people can self-correct for biases even when aware of their biases. See *id.* at 115 (noting that in their experiment on parties in dispute "being informed of the bias had no effect on the discrepancy of the parties' expectations, nor on the likelihood of settlement"); Neal R. Feigenson, *Accidents as Melodrama*, 43 *N.Y.L. Sch. L. Rev.* 741, 781 n.131 (1999-2000) (stating that "jurors cannot simply debias themselves from being influenced by deep-seated habits of thought. Even if they are aware of those habits of thought, they may lack the motivation or the tools to correct properly for what they perceive to be a bias in their

discourage small investors from picking their own stocks, thereby incurring the wrath (and lobbying clout) of the investment industry. A more likely scenario is educational interventions to promote “more rational” active investing.

A weak presumption discourages regulatory interventions that serve little useful purpose. Some of the biases identified by behavioral scholars appear to be beyond regulatory intervention. For example, commentators have cited the tendency for stock prices to go up on sunny days in New York and decline on overcast days.²⁸⁷ Should we therefore close the markets on cloudy days? As far as we know, the SEC has no policies for modifying the weather in New York. This amusing example raises a broader point. Finance professors apparently have the time and inclination to do the data mining necessary to identify such anomalies. Financial professionals may do likewise. Arbitrage may then eventually eliminate the impact of behavioral biases on stock market prices (although new anomalies may emerge).²⁸⁸ But whether or not arbitrage eliminates behavioral biases, many of the anomalies discovered are beyond the power of regulation – public or private – to affect.²⁸⁹ Market actors may or may not respond to these anomalies once they are identified. The question then becomes whether we should lose sleep over them either way. A minimal presumption against intervention screens out regulations intended to solve problems that are not worth worrying about.

Proponents of bounded rationality may also worry that additional information, even in the

thinking.”).

²⁸⁷ See Prentice, *supra* note 15, at 1410 (citing David Hirshleifer & Tyler Shumway, *Good Day Sunshine: Stock Returns and Weather*, forthcoming *J. Fin.*). See also M.J. Kamstra, L.A. Kramer and M.D. Levi, *Losing Sleep at the Market: The Daylight-Savings Anomaly*, 12 *Am. Econ. Rev.* 1005 (2000) (finding a relation between the switch to daylight savings time and stock returns).

²⁸⁸ Indeed, at least one prominent behavioral economist has recently taken to managing his own fund designed to take advantage of the behavioral quirks of other investors. Richard Thaler is a partner at Fuller & Thaler Asset Management Inc. Thaler’s fund manages \$1.4 billion in assets. Thaler describes his fund’s approach as follows: “We just try to forecast the errors of others.” *BusinessWeek*, May 21, 2001 at 124.

²⁸⁹ Prentice also notes the salience of a given company may affect investment decisions. See Prentice, *supra* note 15, at 1470. Once again, it is impossible to point to anything that the SEC has done to address this

form of education about biases, may further confuse investors. Investors already suffering from information overload may overreact to information on their own biases, perhaps leading them to withdraw from capital markets altogether.

We also question whether investor education will have much impact. On the one hand, investor education provides little risk of regulatory error – many investors may simply ignore erroneous or extraneous information. But investors may also ignore even useful educational materials on cognitive biases. The feature that makes investor education low risk also reduces its effectiveness in ameliorating biases. Perhaps investors suffer from such overconfidence that education will not dissuade them from making their own investment decisions. Overconfident investors may (if they bother to read educational materials) still believe that they are too “expert” to be overconfident. We have no doubt that day traders display overconfidence and overoptimism.²⁹⁰ But if their speculative preference is sufficiently strong, no passive alternative will appeal to them. And then again, maybe not. Lacking a theory of biases, it’s hard to make predictions concerning the efficacy of policy proposals.

Even if investor education is effective at reducing biases, regulators may not be the best source of information. Sometimes nothing can substitute for hard experience. An investor that consistently underperforms a salient and easily accessible benchmark such as the S&P 500 index may eventually rethink his strategy. Investors unable to make such adjustments may choose instead to hire expertise – by purchasing index funds, investing through active mutual funds, and investing only in companies with known reputations that trade on nationally recognized exchanges (such as the NYSE). The “dumb money” (such as this paper’s authors) does just fine

“problem,” nor any explanation of how any regulator could counteract this.

²⁹⁰ The market downturn appears to have trimmed their numbers. See Aaron Elstein, Yes, Day Traders Still Exist, They Just Keep a Lower Profile, *Wall St. J.*, Oct. 17, 2002, at D4 (reporting a drop in full-time day traders from 20,000 to 7,500).

with its investments, once they recognize the futility of trying to beat the market.

Mutual funds and investment advisors will also compete to educate the less-than-rational about their behavioral problems to obtain the business of even more investors. In fact, financial intermediaries such as Fidelity are attempting to educate their investors about the risks that cognitive biases pose for their investment decisionmaking.²⁹¹ The financial press also covers these issues.²⁹² To be sure, intermediaries that promote active trading are unlikely to disseminate empirical research that shows the unlikelihood of beating the market. Other intermediaries, however, who promote passive alternatives will have strong incentives to convince people of their behavioral fallibilities.

As Langevoort and others have pointed out, however, institutions may face their own behavioral biases.²⁹³ Money managers may manage funds in a way that leads to herding with other money managers.²⁹⁴ To the extent that managers fear sanctions for poor performance (e.g., losing one's job) more than they seek rewards for beating the average (e.g., a higher salary), money managers may stick close to the crowd of other managers.²⁹⁵ And we cannot expect the investment industry to advise small investors to make a wholesale conversion to passive investment strategies. Where are the trading commissions and management fees in that?

Nonetheless, if the overall performance of funds exceeds the performance of individual investors (although they may still trail the market averages after expenses), mutual funds

²⁹¹ See Russ Banham, *Mind Over Matter*, Fidelity Outlook 14 (August 2002) (explaining how cognitive biases can impair investment returns and how to avoid them).

²⁹² See, e.g., Mary Rowland, *Nobel Winner Unearths 5 Common Investing Mistakes*, (<http://moneycentral.msn.com>) (posted 11/4/2002) (reporting common investment mistakes identified by Nobel prize winner Daniel Kahneman); Holman W. Jenkins, *How Could They Have Done It?*, Wall St. J., Aug. 28, 2002, at A15 (applying behavioral decision theory to meltdown of Enron).

²⁹³ See text accompanying notes 73-93.

²⁹⁴ See, e.g., David Scharfstein, & Jeremy Stein, *Herd Behavior and Investment*, 80 Am. Econ. Rev. 465 (1990); Russ Wermers, *Mutual Fund Herding and the Impact on Stock Prices*, 54 J. Fin. 581 (1999). See also David Hirshleifer & Siew Hong Teoh, *Herd Behavior and Cascading in Capital Markets: A Review and Synthesis*, (Working Paper, December 19, 2001) (surveying empirical evidence on herding behavior by professional investors).

enhance investor welfare. The popularity of such funds demonstrates that at least some investors prefer to delegate investment decisionmaking to intermediaries with greater expertise. And some funds are immune from the cognitive defects of money managers. In particular, index funds provide an obvious alternative for investors seeking to avoid investment mistakes. The pioneer in bringing this strategy to investors, Vanguard, now boasts that one of its index funds is the largest mutual fund in the United States.²⁹⁶

In sum, once the language of behavioral bias becomes common, it is only a short step to more interventionist responses to correct such biases.²⁹⁷ Given the dangers of such responses, we think caution should apply even to limited forms of debiasing efforts. While we see plausible arguments why carefully targeted education may benefit investors, we still think that even such limited intervention should be justified by a showing of a likelihood of net benefit.

C. Applying the Framework

Our framework for assessing regulatory responses to cognitive biases focuses on two relevant factors: the identity of the regulatory decisionmaker and the type of regulatory intervention. Our sliding scale approach is necessarily incomplete. Other types of regulatory intervention to address perceived behavioral biases among investors are undoubtedly possible. We argue that a presumption of some form should exist against all regulatory interventions to counteract cognitive biases. Regulators suffer from their own set of behavioral biases. Given the imprecise (and often contradictory) ways behavioral biases may affect investors, the possibility of mistake is high. Moreover, the costs of such mistakes are significant given the

²⁹⁵ See Judith Chevallier & Glenn Ellison, Career Concerns of Mutual Fund Managers, 114 Q.J. Econ. 389 (1999).

²⁹⁶ Information on Vanguard can be found at <http://www.vanguard.com> (visited on Dec. 12, 2002).

²⁹⁷ Even small interventions in the market to correct for behavioral biases may condition the minds of both

difficulty of undoing regulations once they are put in place.

In applying the framework, care must be taken in balancing the two identified factors. Only the strongest evidence can justify efforts by a monopolistic SEC to remove investment choices altogether. At the other end of the scale, initiatives by private securities exchanges (in competition with one another) to educate investors about behavioral biases raise minimal concerns. A harder choice exists when the SEC attempts to educate investors. Attempts by a securities exchange to supplant market decisionmakers present a similarly difficult question. The risks of misguided and costly interventions to correct cognitive biases are reduced in both situations and correspondingly less justification should be required for such actions.

Ultimately, the notion of a framework for assessing regulatory interventions to address cognitive biases must rely on some institution to apply the presumptions. At a minimum, agencies and courts (as well as Congress) should take caution in intervening to correct market behavioral biases, potentially self-imposing our framework and providing some record of how regulatory proposals meet the applicable presumption. Commentators proposing policy changes should also take caution in attempting to remedy market cognitive biases through regulatory intervention. For certain situations, courts may apply the varying presumptions in reviewing agency regulations targeting market behavioral biases. Courts have their own set of biases, but our proposal does not ask courts to revisit *de novo* the decision on how to deal with investor biases. Rather, courts only must judge whether the regulatory decisionmaker in question has met its burden of proof to overcome the relevant presumption.

One possible criticism of our proposal is that regulators determined to fashion regulatory remedies targeting behavioral biases may do so without stating that such biases are the basis for intervention. The SEC might restrict the investors eligible to take part in private placement

regulators and the market to taking into account behavioral biases.

offerings to those less likely to face behavioral biases without explicitly acknowledging their motive. Several barriers exist against such backdoor attempts. First, regulators must point to some rationale. And to the extent other rationales (including, for example, justifications that assume rational investors) do not support a desired regulatory policy (such as merit regulation) then regulators will lack the ability to push the reform forward. Second, reviewing institutions (such as courts) may come to question overly vague rationales (such as “investor confidence”) as simply facades for behavioral bias motivated regulation. Lastly, it is unclear why regulators would in fact desire to disguise their motivations. Regulators can expand their regulatory authority and prestige. But they may do so already without invoking behavioral biases. To the extent regulators have already exhausted non-behavioral justifications to expand their regulatory authority, turning to these same justifications (even if simply as a disguise for a behavioral bias-related justification) will not gain the regulators any additional benefit.

V. Conclusion

Questioning the assumption that investors act rationally with their investments is an emerging trend in securities regulation scholarship. This trend is likely to accelerate with the recent award of the Nobel Prize in Economics to Daniel Kahneman, a pioneer in bringing psychology to the study of economic behavior.²⁹⁸ The evidence that investors suffer from cognitive failings is impressive. Investors satisfice and employ flawed heuristics. Investors may also experience endowment effects, valuing a loss much greater than a corresponding gain. Cognitive dissonance may then affect investors, leading them to confirm the value of even poorly made decisions. Commentators have seized upon the evidence that investors act with limited cognitive capacity to justify regulatory intervention.

Given the array of biases presented, readers themselves may face an availability bias, placing too much weight on what can go wrong in investing rather than weighing the overall evidence related to the ability of investors.²⁹⁹ And evidence exists in fact that the securities markets in part already have internalized and responded to the presence of behavioral biases. Very few investors participate in active day trading, and increasing numbers of investors put their savings into passive low cost and tax efficient index funds.

We find the insights of behavioral theory provocative. It is unclear, however, what regulatory response is both necessary and plausible. Disclosure is the primary tool of the present U.S. securities regulatory regime. Yet disclosure is unlikely to help investors suffering from overconfidence, loss aversion, and cognitive dissonance. One could imagine a more interventionist regime, such as merit regulation. But merit regulation comes with a much larger set of problems. The specter of regulators centrally planning investment decisions does not bode well for the allocation of investment capital to its highest valued uses.

Less intrusive regulatory alternatives carry their own risks. Regulators are vulnerable to a wide range of behavioral contagion. Regulators may suffer from overconfidence and process information with only bounded rationality. Heuristics play a large role in how regulators make decisions. Even with expertise, regulators may misapply heuristics across the spectrum of different regulatory problems. Regulators may also suffer from the confirmation bias, supporting prior regulatory decisions whatever the wisdom of the decisions.

And in groups the decisionmaking of regulators may decline rather than improve. On the one hand, groups and organizational structures may help alleviate some of the mistakes that

²⁹⁸ See Jon E. Hilsenrath, Nobel Winners For Economics Are New Breed, Wall St. J. B1 (Oct. 10, 2002).

²⁹⁹ See Jay J.J. Christensen-Szalanski & Lee Roy Beach, The Citation Bias: Fad and Fashion in Judgment and Decision Literature, 39 Am. Psychologist 75 (1984) (arguing that behavioral literature may unduly emphasize evidence of non-rational decisionmaking).

derive from individually biased decisions. Studies of group decisionmaking provide evidence that the total can indeed be greater than the sum of individuals in enhancing the accuracy of decisions. But cognitive illusions may grip entire groups. Groupthink may also lead to an uncritical acceptance of regulatory decisions.

If both investors and regulators operate under the influence of behavioral biases, the value of regulation in correcting these biases comes into question. If regulators are not well equipped to determine whether regulation will counteract the biases facing investors, regulation may well do more harm than good. Worse still, SEC regulators may suffer greater behavioral biases than securities market participants. Investors that perform poorly will either learn (and perhaps put their money into an index fund or otherwise hire expertise) or exit the market. Private institutions face a similar market pressures to serve the interests of their client-investors or perish. Although some types of biases may give institutions a competitive edge, the magnitude of such biases is limited by the cost that they impose on investors. The market may not function perfectly, but regulators under the present regime face no such pressures. To the extent regulators themselves make the decision whether to intervene into markets, the risk of ill-conceived intervention is even more acute. We therefore propose a framework for assessing regulatory interventions to correct for behavioral biases.

The appropriate presumption against regulation varies with the type of regulator and form of regulation. Certain types of regulators, including private securities exchanges and other competitive regulators, as well as certain forms of intervention, including investor education, pose a much lower risk of error. Despite their behavioral biases, regulators may have a role to play in channeling market forces toward achieving the best level of investor protection. In addition to serving as a source of investor education, regulators may oversee competition among

private regulators such as exchanges to help counteract behavioral biases within the exchanges. While competition will weed out some biases, having to answer to monitoring regulators may further weed out biases among self-regulatory organizations.

We offer only tentative solutions to the problem of behavioral biases among securities regulators. The insights of behavioral law and economics are limited by the lack of a general theory to explain why the human mind results in behavioral biases in decisionmaking. Without such a theory, assessing possible methods for ameliorating such biases is a murky task at best. It is considerably clearer that focusing on biases among investors, while ignoring equivalent or worse biases among regulators, will lead to excessive regulatory intervention. Our contribution in this article is to balance the behavioral critique of investors with one of regulators.